VT-86
Strike Segment Planning Guide

Updated: June 2012

NOTE

This is the **35thedition** of the VT-86 Strike Segment Planning Guide. Previous editions are obsolete. This guide is meant to supplement, but not replace, the AP/1B. Additionally, procedural and planning updates will be provided via the VT-86 Stan Notes. It is ultimately **your responsibility** to incorporate all of the most current information into your flight planning (i.e. CHUM, Stan Notes, updated AP/1B information, etc.). This document is also located at: https://www.cnatra.navy.mil/tw6/vt86/documents.asp

*** Bring this supplement to all briefs ***

CONTENTS

STUDENT INFORMATION & SYLLABUS OVERVIEW

WELCOME TO VT-86!

INTRODUCTION

This supplement presents the most current route information available and also includes detailed planning standards, chart-making checklists and JMPS instruction. You will also find supplemental flight procedures information and helpful hints. The Strike Briefing Guide (for Airways Navigation through Composites) is included as well.

TECHNIQUES vs. STANDARDS

As you progress through your training, instructors will present many different techniques in their efforts to make you a stronger aviator. It is the responsibility of the instructor to make it clear when he/she is presenting or recommending a technique. It is also the responsibility of the instructor to grade only the performance of the student measured against the standardized grading criteria and not the student's performance of a particular technique.

The current Strike Stan Officer is designated in the Strike Stan Notes. The Strike Stan Notes are located at: https://www.cnatra.navy.mil/tw6/vt86/documents.asp Contact this instructor or talk with your Personal Advisor if you wish to discuss a standardization issue.

MILITARY BEARING

- Military bearing shall be adhered to at all times.
- No civilian attire during work hours.
- No civilian attire in the simulator.
- Students may not sleep, eat, read newspapers, etc. on-board aircraft.
- No class patches on uniforms--service or country patches only.
- Uniforms must comply with respective service directives or agreements.

INTEGRITY

- No sharing of JMPS files
- Dishonest or deceitful behavior will result in attrition
- Do your own work, crosschecking is encouraged--copying is not!
- Do not speak from the back of the aircraft unless for safety of flight or pre-briefed reasons, when spoken to by the instructor or pilot, or for a two-minute prior call. Doing so will result in an UNSAT event.
- *Live by the gouge, die by the gouge!*

CRITIQUES

Please take notes for critiques as you go. It will help us tremendously if you fill them out using accurate detail and specific examples. They do work! We take them seriously and have made numerous, positive changes to the program because of student inputs.

STAN NOTES

Current Stan Notes are posted in the Ready Room. Additional copies are also posted on the squadron's website. You are responsible for all of the Stan Notes; watch for updates. JMPS chart standards are posted in the chart room and in the NAMO classroom.

SYLLABUS OVERVIEW

A planning calendar will be provided upon class check in, outlining a general academic syllabus flow, though it is to be used only as a guide. The published flight schedule is the only reliable indicator of the following day's events. Your syllabus will begin with Ground School on what is expected on VT-86 flights, followed by T-39 systems, IGS and then exams.

Below is the required reading for VT-86 strike segment academic classes. Each class will begin with a written quiz based upon the items discussed in the required reading. A grade of 80 percent or greater is required to pass each quiz. Failure of a quiz will result in counseling with the academic instructor; failure of two quizzes will result in counseling with the Strike Segment Training Officer and placement on SMS; failure of three or more quizzes will result in counseling with the Operations Officer with further action to be determined on a case by case basis.

Class	Required Reading
Low-Level / Radar Planning	CNATRA P-813: *FTI Low-Level Navigation Intermediate Jet* CNATRA P819A: *Radar Planning and Navigation Strike* (pp. 1-6) SSPG Section 4: *Low Level / Radar Planning*
JMPS I Planning	SSPG Section 1: *Student Info and Syllabus Overview* Section 2: *Strike Syllabus Events* Section 3: *Route Planning Info*
Basic Radar Predictions	CNATRA P-819A: *Radar Planning and Navigation Strike* (pp. 35-45)
Low-Level / Radar Navigation Lecture	CNATRA P-819A: *Radar Planning and Navigation Strike* (pp. 7-34)

Turnpoint Procedures	VT-86 Turnpoint Procedures Student Guide
Carrier Ops Lecture	CNATRA P-816: *CV Procedures*
Flight Prep / CRM	NAVAIR 01-60GBE-1: *NATOPS FLIGHT MANUAL T-39 G/N* Chapter 4: *Aircraft Operating Limitations* Chapter 6: *Normal Flight Procedures* Chapter 17: *Flightcrew Coordination* Chapter 19: *Performance Data Introduction*
Strike Seminar	SSPG Section 5: *Strikes* Section 6: *Strike Timing Sim / Strike Radar Sim*
Composite Ground School	SSPG Section 7: *Composites*

After Ground School you should flow through events according to the following list. Read the applicable briefing guide and Master Curriculum Guide (MCG) description before the event; they will provide further details as to the conduct of the event. You are expected to be familiar with the contents of the briefing guide. Observer hops are highly encouraged -- fly them whenever you get a chance.

Fam-0 *T-39* **Cockpit Fam/Refresher:** T-39 orientation on preflight and switchology. Know EPs/Limits and study the checklists to prepare.

Radar Simulator Training 0: Your first simulator emphasizing instrument work, T-39 checklists and emergency procedures. The only radar work done is the radar power up, and potential weather avoidance demo. Have everything prepared for the brief just as if you were going flying including all pubs and charts, as well as briefing board, jet card, DD-175, weather, NOTAMS, etc. Expect at least two approaches. USN/USMC students should be ready for CV Operations.

> **Std Routing:** KNPA – TEEZY – JERYS – BFM – ERNON (GCV 064/22) – MEI (DELAY 0+20 MEI) – MCB – GPT (DELAY 0+20 GPT) – PLEBE (BFM 242/22) – JERYS – TEEZY – KNPA

Airways Navigation 1-2: Your first two flights are flights to adjust to the T-39 cockpit, checklist familiarization, O_2 mask procedures, NATOPS & systems discussion, and (of course) to get the rust off. You must plan for a minimum of two point to points on each flight. These two flights are your best opportunities for cross-country flights. The cross-country board is posted in the hallway next to the instructor Ready Room. Please talk with the instructor before putting your name on the board. *Fam-0 and RST-0 are prerequisites to Air Navs.*

Radar Synthetic Trainer 1-3: Simulator events to practice radar control and operation, and to solidify turnpoint procedures. These events may take place before, after or concurrently with Air Nav flights. USN and USMC students should be prepared to execute CV procedures during these events. All simulator events shall be planned as a single NFS evolution. Each NFS shall perform all ground operations & checklist items, departure, mission profile, and recovery. MCFs shall be calculated as such. When doing the NPA-14, the first NFS should plan to do A-F followed by an approach, and the second NFS should plan to do F-K followed by an approach.

Radar Navigation 1-3: Medium-altitude flights utilizing the radar as the primary navigation tool. Emphasis is now on real-world radar returns, refining turnpoint procedures, and basic airmanship. These flights may be at night--bring a flashlight.

Low-Level Navigation 1-2: An introduction to VT-86 low-levels at 500' AGL. The emphasis on these flights is to reintroduce students to the low-altitude environment and refine turnpoint procedures. Focus on safety/hazards, refining scan, eyeball and clock-code calibration, and height/distance estimation. _LAAT class is prerequisite to LL-1._

Strike Timing Simulator: A simulator to introduce and practice various real-world enroute (high-level) timing planning and procedures. The control time is the MTR route entry time. Plan the three prescribed scenarios. All three scenarios may be accomplished during the event. STS may be accomplished before or after LL flights as the only prerequisites are Strike Seminar and Chart Prep I.

Strike Radar Simulator: A simulator to reinforce real world enroute (high-level) timing planning and procedures to an entry point. The sim is also an introduction to low-altitude radar usage and Strike turnpoint procedures in the low-level environment (500-1500 ft AGL) using elapsed time.

Strike 1-3: Combines AN procedures with real world timing to the entry point. LL route conducted with elapsed timing and combines LL and RN procedures in the low altitude regime (500ft - 1500ft AGL).

Composite Simulator Training 1-3: Simulator events introducing medium and low-altitude mountainous terrain interpretation. Students will begin to combine radar and visual information to build SA. Timing is now based on a real world Zulu target time (TOT). In CSTs and Comps, students will learn to use turnpoint procedures to navigate off of the black line. _Note:_ Students must prepare a radar prediction for only the target on the IR-83 and IR-723. The IR-83 will be a 40nm prediction at high altitude; the IR-723 will be a 20nm prediction at low altitude. Failure to have predictions will result in a Ready Room Unsat. Composite Ground School and Chart Prep II are prerequisites for these events.

Composite 1-5X (T4004-7/T4190): Composite flights are the culmination of all events up to this point. Comp-1 will begin at 1500' AGL and stress radar terrain interpretation. Comp-2 through Comp-5X will work on low altitude terrain flying, sensor management, and developing mission commander/DAMCLAS skills. Comp-5X is a FRAG-X on an unfamiliar route. It will be planned on the day of the event with no instructor assistance in planning or execution.   All aspects of the flight from planning to debrief are the

responsibility of the student MC. Students shall turn in all charts and planning materials to their instructor upon successful completion of Comp-5X.

WARM UP FLIGHTS

Read the MCG (CNATRAINST 1542.158 Series) regarding warm-up flight criteria. Be proactive and tell your event's MC if you have not **completed** a syllabus event (flight, simulator, academic) in 7 days or more. Reference the CNATRANIST 1500.4 Series Expanded Warm up Criteria for a more detailed explanation.

PERSONAL ADVISOR (PA) PROGRAM

VT-86 takes the PA program seriously. Your PA will be a tremendous help in your success at VT-86. Please use him/her as much as possible. Ask your PA to go to the sim, etc., and document all of your time together in your junk jacket. A weekly meeting is required and beneficial for both parties. Personal advisors will perform chart checks. It is the student's responsibility to have the chart check signed off before RST-1 and LL-1. A chart check is highly recommended though not required prior to Strike Sims, Strike Flights, CSTs and Comps. If your PA is not available, any Strike instructor may perform the chart check, but do not wait until the night before your first event; there are no guarantees that the chart check will be accomplished.

IMPORTANT PHONE NUMBERS

        SDO: 850-452-4168/4169 or 1-888-762-9837
        Sim Bldg: 850-452-2773
        FACSFAC: 850-452-2735
        BASE OPS: 850-452-2431/2432
        MUSTER: 850-452-3958
        Naval Observatory Time Hack: 762-1401DSN, 202-762-1401COMM

MISC

VT-86 is a time management lab. This time crunch will create some stress. If you have a family, talk to them about your upcoming workload and time management. Keep your spouse informed and allow time for your family. For you single types, this isn't college anymore. Be responsible and work hard!

You will have more time during the first three weeks of Ground School than any other time. Use that time appropriately to finish charts, practice in the sim or take observer flights. Observer flights can be taken at any time after checking in to VT-86. If doing an Observer flight before your FAM-0, be sure to inform the MC so he or she can give you the required egress training.

Expect to be scheduled every day. Do not assume that you will have the day off unless it is allotted in the curriculum, and then you must still check the schedule.

Your "crew day" is defined in your MCG, as well as the CNATRAINST 1500.4 Series. Be certain that you understand it, and how it may affect your planning and flexibility.

For example, you do not want to arrive too early, as you may become the limiting factor when it comes to flexing for weather, maintenance or other issues. By the same token, you should immediately check the schedule after a flight to be certain to leave the squadron on time.

Observers are not allowed on IUT-only flights, NATOPS checks, IPC, FPC, or COMP 5X. All other flights may be observed at the discretion of the Mission Commander. Students wishing to observe an event must contact the CDO to be placed on the schedule as an observer, and will attend the event brief. Observing briefs separately is also encouraged.

All snivels (flight physicals, etc.) must be worked through the strike schedules officer or your PA. If you go med-down, you must keep the skeds officer and student control apprised of your status. Expect ground duties and simulator events. Inform the skeds officer when you are med-up! If you are scheduled for an event that appears to be out of order, advise the skeds officer immediately.

If you are put on SMS be sure to adhere to all SMS requirements. Students on SMS can do no more than one event a day and are not allowed to go on Cross Countries. If your PA is unavailable for SMS required meetings the Student Control Officer is the alternate PA for all students.

Required Strike Training Support Materials List

	Identification	Name	Qty/Student
1.	CNATRAINST 1542.158	Adv Multi-Svc NFO/AF CSO Trng Sys Curr	1
2.	NAVAIR 01-60GBE-1A	T-39 NATOPS (15 OCT 2006)	1
3.	NAVAIR 01-60GBE-1B	T-39 Pocket Checklist (15 OCT 2006)	1
4.	CNATRA PAT P-857	Trainee T-39 NATOPS Workbook	1
5.	CNATRA PAT P-856	Trainee T-39 Flight Preparation Workbook	1
6.	CNATRA PAT P-819A	Radar Planning and Navigation	1
7.	CNATRA PAT P-820	Radar Theory Grnd Mapping / Intercept Fundamentals	1
8.	CNATRA PAT P-607	Instrument Ground Training	1
9.	COMTRAWINGSIX 3710.17	CTW-6 In-Flight Guide (Enclosure x)	1
10.	COMTRAWINGSIX 3710.17	CTW-6 Stereo Route (Enclosure 2a)	1
11.	COMTRAWINGSIX 3710.17	T-39 Sabreliner In-Flight Guide (Enclosure x)	1
12.	VT-86 Pub	VT-86 Squadron Standard Operating Procedures	1
13.	VT-86 Pub	Strike Stan Notes	1
14.	VT-86 Pub	Student Guide for Turnpoint Procedures	1
15.	VT-86 Pub	Strike Segment Planning Guide	1
16.	Supplement	Radar Power-Up and Built-In-Test (BIT)	1
17.	CNATRA GEN 3760/1	Single Engine Jet Log	30
18.		Plotter	1
19.		Tracing paper *(bring to Rdr Predictions Class)*	1
20.		#2 pencil	1
21.		Masking Tape *(bring to Rdr Predictions Class)*	1
22.	CNATRA PAT P-816	CV Procedures (Navy and Marines only)	1

VT-86 Required Strike Products

Phase	Event	Briefing Board	ORM sheet	Jet card[1]	DD-175[2]	Wx[3]	NOTAMs	BASH	TFRs[4]	Radar Prediction	Chart Check	Applicable Pubs	Charts[5]
RADAR PHASE	FAM-0	No	No	No	No	No	No	No	No	N/A	N/A	N/A	N/A
	RST-0	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes	N/A	N/A	Yes	N/A
	RST-1	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes	Target only, 20 nm scope	Yes, prior to RST-1	Yes	NPA-14 IR-037 IR-040
	RST-2	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes			Yes	
	RST-3	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes			Yes	
	AN-1	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes	N/A	N/A	Yes	N/A
	AN-2	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes	N/A	N/A	Yes	N/A
	RN-1	Yes	Yes	Yes	No	TAFs/-1	Yes	Yes	Yes	Target only, 20 nm scope	Yes, prior to RST-1	Yes	NPA-14 IR-037 IR-040
	RN-2	Yes	Yes	Yes	No	TAFs/-1	Yes	Yes	Yes			Yes	
	RN-3	Yes	Yes	Yes	No	TAFs/-1	Yes	Yes	Yes			Yes	
STRIKE PHASE	LL-1	Yes	Yes	Yes	No	TAFs/-1	Yes	Yes	Yes	N/A	Yes, prior to LL-1	Yes	VR-1024
	LL-2	Yes	Yes	Yes	No	TAFs/-1	Yes	Yes	Yes	N/A		Yes	VR-1021
	STS	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes	No	No, however highly recommended	Yes	N/A
	SRS	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes	Target only, 20 nm scope		Yes	VR-1032
	STK-1	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes			Yes	VR-1032 VR-1031 VR-1050
	STK-2	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes			Yes	VR-1024 (G-M)
	STK-3	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes			Yes	VR-1059
COMPOSITE PHASE	CST-1	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes	Target only, 40 nm scope	No, however highly recommended	Yes	IR-083
	CST-2	Yes	Yes	Yes	Yes	TAFs	Yes	Yes	Yes	Target only, 20 nm scope		Yes	IR-723
	CST-3	Yes	Yes	Yes	No	TAFs	Yes	Yes	Yes	No		Provided to NFS	Provided to NFS
	COMP-1	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes	Target only, 20 nm scope	No, however highly recommended	Yes	VR-1055 VR-1056
	COMP-2	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes			Yes	VR-189 VR-1182
	COMP-3	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes			Yes	VR-1031 VR-1032
	COMP-4	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes			Yes	VR-1059 VR-1024 (G-M)
	COMP-5	Yes	Yes	Yes	Yes	TAFs/-1	Yes	Yes	Yes	No		Yes	

NOTES:

1. Bring all jet cards for that type of event (RNs, LLs, etc.) to the briefs and on the flights. Wind the jet card you expect to fly, but be prepared to fly any route. Frequently, we will have to change the route and it will require that you have a non-winded jet card available with you. There is nothing more upsetting to an instructor than someone who is not ready to go flying. **DON'T BE CAUGHT OFF GUARD**. (For Strikes and Comps, flexing will be fairly common.) Not having all required paperwork will result in an automatic Ready Room Failure.

2. Practice DD-175's are required for stereo sims, but not required for stereo route flights. If your RN or LL is NOT a stereo route, you must have a DD-175 for the event.

3. A customized wx brief is required for every FLIGHT event except RNs and AN-1/2 (so long as AN-1/2 are in the local area).

4. A TFR printout is not required if there are no applicable TFRs along your planned and back up routes of flight.

5. Bring all charts to every brief for each particular type of event, including LL/Strike charts to Comp events. All charts for a particular type of event must be complete and ready for inspection by the first event of that type. (This includes overviews, check pt selection, jet cards, etc.)

- Bring your junk jacket, MCG, PCL, Stan Notes, and the Strike Segment Planning Guide to all briefs.

- ENTRY TIMES (RN/LL). Route entry times should be scheduled by the Strike Schedules officer. However, it is your responsibility to verify, and if necessary, schedule an entry time consistent with your flight plan.

-ENTRY TIMES (STK/COMP). NFS is responsible for scheduling entry times.

STRIKE SYLLABUS EVENTS
PREFERRED ROUTES

ROUTE	**SIM**	**FLIGHT**
AIRNAV/APPROACHES... RST-0		AN-1/2

RST/RN
NPA-14 .... RST-1		RN-1
IR-037 (NPA-937) RST-2		RN-2
IR-040 (NPA-940) RST-3		RN-3
IR-021 .... Backup		

*In the event of a flex to the IR-021, instructor will provide required charts.

LOW LEVEL
VR-1021 (NPA-554)...		LL-1
VR-1024 (NPA-553)...		LL-2

STRIKE *(Charts may be started but not printed until Strike Seminar complete)*
VR-1050	(Tuscaloosa/Huntsville) .... STS	STK-1
VR-1032	(Meridian) .... STS/SRS	STK-2
VR-1031*	(Meridian).. STS	STK-3
VR-1024	(Single Student, Points G-M)	Backup
VR-1059	(Columbia - KCAE)	Backup

*VR-1031 may also be flown as a single student event

STRIKE / COMPOSITE PREFERRED COMBINATION ROUTES
VR-189 – Fort Smith (FSM) – VR-1024(G-M) – NPA
VR-189 – Fort Smith (FSM) – VR-1032 – NPA
VR-1032 – Little Rock (LRF) – VR-1182 – NPA
VR-1056 – Chattanooga (CHA) – VR-1031 – NPA

CST *(Charts may be started but not printed until Comp Ground School complete)*
IR-83 .... CST-1		
IR-723 .... CST-2		
SHOW-n-GO CST-3		

COMPOSITE *(Charts may be started but not printed until Comp Ground School complete)*
VR-1056/1055, VR-189/1182		COMP-1-4
FRAG-X		COMP-5X
VR-1055 (Single Student, Points C-G)		
Any STK Route/ Any LL Route for backups		

NOTES

- Do not plan routes until after JMPS Class, but be familiar with this guide.

- Bring all charts to every brief for each particular type of event, including all LL charts to Strike events. All charts for a particular type of event must be complete and ready for inspection by the first event of that type. (This includes overviews, check pt selection, jet cards, etc.)

- Have all completed jet cards as well, but only wind the airnav portion of the route that you expect to fly that day. Not having all required paperwork will result in automatic Ready Room Failure.

- Start VR-1032/1059/1024/1031/1050 charts before Strike Seminar.

- Students will not fly the same route twice during regular training unless it is as a last resort or a necessity for completion.

- Students are responsible for ensuring all route times are scheduled with the appropriate authority and that additional route deconfliction is done when necessary. See "Scheduling MTRs" on p.30.

- A chart check is required prior to RST-1 and LL-1. The chart check must be annotated in the student's junk jacket. If the chart check is not completed, a Ready Room Fail will be awarded. A chart check is not required but is encouraged for Strikes, CSTs and Comps. Any Strike instructor may sign off the chart check if the student's PA is not available.

- Completion of a chart check does not pass responsibility for accuracy and correctness to the checking instructor.

- It is the MC's prerogative to select a route not listed above for any mission. In such a case, a completed chart will be provided to the student and sufficient time should be allotted to update the chum and mission planning materials for the flight.

- All charts will be turned in to the Strike Stan Officer at the completion of the Strike phase of training during the Strike Debrief.

- Route altitudes on Strike Flights will be 500' AGL on visual legs and 1500' AGL on radar legs unless otherwise required by AP/1B or BASH restrictions.
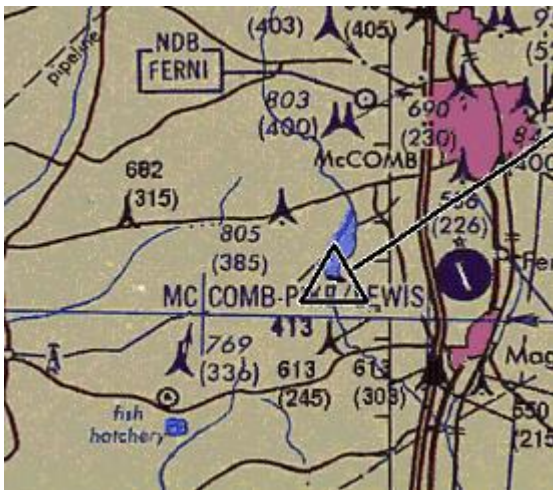
NPA-14

DEPARTURE: 300KTAS, 12,000', TEEZY – JERYS

ROUTE: (Expect to fly or request 12,000')

	PT	DESCRIPTION	TACAN CUT	LAT/LONG
1st Pt	A	BAYOU LA BATRE	SJI159020	N3024/W8815
	B	ROAD BRIDGE	SJI227032	N3024/W8851
	C	WIGGINS DAM	SJI277041	N3052/W8908
	D	RIVER BEND	PCU353026	N3100/W8945
IP	E	RIVER BEND	MCB060015	N3126/W9001
TGT	F	DAM	MCB238015	N3111/W9031
	G	HAZLEHURST	MCB345034	N3152/W9024
	H	SMOKESTACK (208')	MCB015052	N3209/W8959
	I	POWER STATION	LBY327017	N3139/W8931
IP	J	DAM	GCV335034	N3138/W8842
TGT	K	N. PLANT	GCV062027	N3116/W8759

ARRIVAL: BFM – JERYS – TEEZY– NPA

REMARKS:
- Rehack at Pt F (1st TGT) for the 2nd half.
- For timing, set the 1st half to 'elapsed' & 2nd half to 'clock time'
  (JMPS will require text boxes for times at all TPs)
- For 2-student sims, each student will perform a different half of the route.
- Each student will perform a departure and an approach.

Route	I/V	Type	Depart	TAS	Alt	Route of Flight	To	ETE	TTE
NPA 14	IFR	SBR1/A	NPA	300	120	TEEZY JERYS SJI159020 SJI227032 SJI277041 PCU353026 MCB060015 MCB238015 MCB345034 MCB015052 LBY327017 GCV335034 GCV062027 BFM JERYS TEEZY NPA	NPA	2+00	2+00

IR-037 (NPA 937)

DEPARTURE: 300KTS 10,000' TEEZY – JERYS – IR-037

ROUTE: (Request 6,000MSL)

	PT	DESCRIPTION	TACAN CUT	LAT./LONG.
	A	DAM	SJI099002	N3043/W8819
Rehack	B	RD BRIDGE	GPT027033	N3053/W8846
	C	LEAKESVILLE	LBY107043	N3109/W8834
	D	HESSLER-NOBLE APT	LBY025017	N3140/W8910
	E	RIVER BEND (Leftmost)	PCU353026	N3100/W8945
IP	F	LAKE	PCU055009	N3038/W8935
TGT	G	AIRPORT	GPT	N3024/W8905

   ** After AP/1B(G), request re-enter IR-037 at AP/1B(B). Students switch seats
      during this leg.

ARRIVAL: *(REQUEST 9,000')* – JERYS – TEEZY – NPA

REMARKS:

- Read AP/1B notes for route widths, altitudes, and additional notes and restrictions.
- This route transits a portion of the DeSoto MOA. The wing leader will verify that the airspace is cold and annotate that in the flight schedule notes. If the airspace is active, ATC will <u>not</u> provide separation while in the MOA so transit aircraft must maintain VMC and MARSA with aircraft operating in the MOA. If there is doubt about the status of the MOA, aircrew may call the GTP CRTC 228-214-6053/6054 to verify.
- All aircraft are required to transmit in the blind on 228.85 their intention to transit the DeSoto MOA.
- *Timing:* Insert a 'clock' at Pt B and use 'clock time' for entire route.
   (JMPS will require Text Boxes for Times at all TPs)
- Route is flown twice. The leg from G→B will be time ticked separately for 270 KGS.
- *Fuel Notes:* plan directly to the field vice initial. Plan for min fuel on deck. Use NATOPS Max Range & Round to nearest 10# for IR-037.
- *Additional Strip Charts for Re-entry:* G→B leg.

IR-040 (NPA 940)

**DEPARTURE:** 300KTS 10,000' TEEZY – JERYS – IR-040

ROUTE: (Request 5,000MSL)

	PT	DESCRIPTION	TACAN CUT	LAT./LONG.
	A	PENINSULA	SJI169022	N3022/W8819
	B	DAM	SJI099002	N3043/W8819
	C	CITRONELLE	GCV084013	N3105/W8814
	D	WAYNESBORO	LBY061039	N3141/W8838
	E	HESSLER-NOBLE APT	LBY025017	N3140/W8910
	F	RICHTON	LBY096021	N3121/W8856
IP	G	LEAKESVILLE	LBY107043	N3109/W8834
TARGET	H	BRIDGE	GPT027033	N3053/W8846

> ** After AP/1B(H), request re-enter IR-040 at AP/1B(B) . Students switch seats this leg.

ARRIVAL: (REQUEST 9,000') JERYS – TEEZY – NPA

REMARKS:

- Read AP/1B notes for route widths, altitudes, and additional notes and restrictions.
- This route transits a portion of the DeSoto MOA. The wing leader will verify that the airspace is cold and annotate that in the flight schedule notes. If the airspace is active, ATC will <u>not</u> provide separation while in the MOA so transit aircraft must maintain VMC and MARSA with aircraft operating in the MOA. If there is doubt about the status of the MOA, aircrew may call the GTP CRTC 228-214-6053/6054 to verify.
- The MOA Common Frequency in AP/1B is incorrect. All aircraft are required to transmit in the blind on 228.85 their intention to transit the DeSoto MOA prior to F.
- *Timing:* Insert a 'clock' at Pt B and use 'clock time' for entire route. Change A→B leg to 'elapsed time'.
  (JMPS will require Text Boxes for Times at all TPs)
- Route is flown twice. Plan the leg from H to B to have a turn radius out of Pt H and a 2nd turn radius out of Pt B.
- Due to being outside of the corridor, the leg from H → B will be time ticked separately for 270 KGS.
- *Fuel Notes:* plan directly to the field vice initial. Plan for min fuel on deck. Use NATOPS Max Range & Round to nearest 10# for IR-040.
- *Additional Strip Charts for Re-entry:* Produce H→B leg.
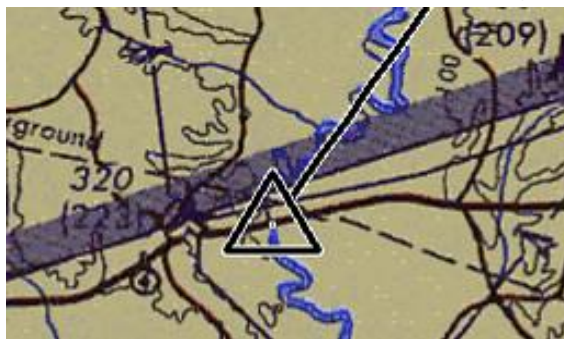
VR-1021 (NPA 554)

DEPARTURE: 300KTS 10,000' ENSLY – MVC – MVC022014
           (VFR DELAY 1+00 VR-1021 (E-R))

ROUTE:

	PT.	DESCRIPTION	TACAN CUT	LAT./LONG.
1st Pt	E	TUNNEL SPRINGS	MVC028012	N3138.4/W8714.4
	F	HWY OVERPASS	MVC068032	N3139.0/W8647.5
	G	FOREST HOME	MVC043036	N3151.6/W8650.3
	H	ST CLAIR	MGM288016	N3219.4/W8636.9
	I	BILLINGSLEY	MGM320033	N3239.4/W8643.2
IP	J	DAM (S. END OF LAKE)	LDK166023	N3252.8/W8726.7
TGT	K	DAM (NOT THE LOCKS)	LDK205032	N3246.5/W8750.1
	L	RD BRIDGE	MEI064034	N3235.0/W8811.0
	M	RD BRIDGE	MEI097041	N3214.0/W8800.9
	N	FIRE TOWER	MEI119028	N3208.0/W8821.0
	O	TOWER	MEI148044	N3143.0/W8824.0
	P	DAM	MEI132051	N3146.0/W8807.0
IP	Q	DEER PARK	GCV046011	N3113.0/W8818.9
TGT	R	CALVERT	GCV078024	N3109.2/W8800.6

ARRIVAL: (MOBILE APPROACH 269.3) 250 KTAS 9,000' BFM JERYS TEEZY
           NPA

REMARKS:

- Read AP/1B notes for route widths, altitudes, and additional notes and restrictions.
- Two minutes prior to Billingsley and Deer Park transmit on 255.4
- Avoid the town of Oakmulgee (Mink farm) between AP/1B(I) and (J) by 1000' or 1 nm. N3248 W08702.5
- The route scheduler will not deconflict you with the VR-1031 (I-J). NFS' must personally deconflict this route.

VR-1024 (NPA 553)

DEPARTURE: 300KTAS 10,000' TEEZY – JERYS – SJI169022
(VFR DELAY 1+05, VR-1024 (A-M)

ROUTE:

	PT.	DESCRIPTION	TACAN CUT	LAT/LONG
1st PT	A	PENINSULA	SJI169022	N3022/W8819
	B	RD BRIDGE	SJI263012	N3043/W8836
	C	WIGGINS DAM	SJI277040	N3052/W8907
	D	ROAD OVERPASS (small)	LBY182018	N3108/W8922
	E	FIRE TOWER	MCB140018	N3105/W9002
IP	F	GOSS	MCB078019	N3122/W8953
TGT	G	MT OLIVE	LBY316026	N3145/W8939
	H	GRAIN ELEV. (DRAW IN)	LBY003037	N3202/W8916.5
	I	DESOTO	MEI165025	N3158/W8843
	J	DAM	GCV341034	N3138/W8842
	K	TOWER (325')	GCV346019	N3125/W8835
IP	L	TOWER (318')	GCV072012	N3109/W8816
TGT	M	RR BRIDGE	BFM018014	N3050/W8757

ARRIVAL: (Mobile Appr 269.3) 250KIAS 9,000', BFM – JERYS – TEEZY – NPA

REMARKS:

- Read AP/1B notes for route widths, altitudes, & notes and restrictions.
- Remain above 1800' AGL until crossing AP/1B(A)
- Points A to D closely correspond to points A → D on the VR-1023. Ensure a minimum of ten minutes separation between aircraft.
- Two minutes prior to Deer Park/Citronelle transmit on 255.4
- North of course at point AP/1B(C), is the Desoto MOA. The MOA frequency 228.85 is required to be on your chart.
- Mount Olive & Purvis are NSA's & will be overflown at 1000' AGL minimum.
- The VR-1024(G-M) is used for local strike events. Enter at point G. The radar points are H, J and M. Modify chart according to instructions in strike seminar. Do not reprint.

VR-1031 (DD-175)

ROUTE:

	PT	DESCRIPTION	TP TYPE	LAT/LONG.
	F	RR BRIDGE	VISUAL	N3323/W8623
	G	MILLERVILLE	RADAR	N3310/W8555
	H	ROCKFORD	RADAR	N3253/W8613
	I	BILLINGSLEY	RADAR	N3240/W8643
	J	DAM (S. END LAKE)	VISUAL	N3253/W8727
	K	SAWYERVILLE	VISUAL	N3245/W8744
IP	L	MAGNOLIA	VISUAL	N3208/W8741
TGT	M	BUTLER	RADAR	N3205/W8813

REMARKS:

- Read AP/1B notes for route widths, altitudes, & notes and restrictions.
- Alternate scheduling number (VT-7): (601) 679-2321
- Figure out your own TACAN cuts. *(In Tabular View, input '@' in remarks)*
- Avoid the town of Oakmulgee (Mink farm) between AP/1B(I) and (J) by 1000' or 1 nm. (N32-48 W87-02.5)
- Two minutes prior to Billingsley transmit on 255.4
- Transmit in the blind on 252.9 intentions to transit Birmingham MOA after Pt. India.
- After TGT, continue west approx 1 min to clear MOA. File to the EWA174016 as exit point and contact Memphis Center on 351.7
- The route scheduler will not deconflict you with the VR-1021 (I-J). NFS' must personally deconflict this route.

VR-1032 (DD-175)

ROUTE:

	PT	DESCRIPTION	TP TYPE	LAT./LONG.
	A	ROAD BRIDGE	ENTRY	N3246/W9038
	B	SONDHEIMER	RADAR	N3233/W9110
	C	RADIO TOWER (350')	VISUAL	N3236/W9129
	D	BONITA	VISUAL	N3255/W9140
	E	HUTTIG	RADAR	N3303/W9211
	G	BRIDGE S. OF MORO BAY	VISUAL	N3318/W9221
	1H	HAMBURG	RADAR	N3314/W9148
IP	2H	PARKDALE	VISUAL	N3308/W9133
TGT	I	OIL TANKS (See Imagery)	RADAR	N3253/W9104
	J	HOLLY BLUFF (Admin Leg)	VISUAL	N3250/W9042

REMARKS:

- Read AP/1B notes for route widths, altitudes, & notes and restrictions.
- Entry Procedure: VR-1032(A→B) shall be flown at 1500' AGL for deconfliction. Enter point A south of Holly Bluff.
- Exit Procedure: Exit VR1032(J) to the north of Holly Bluff turning to a heading of 360 while avoiding Yazoo Co uncontrolled airfield to the NE. Once above 3000' AGL, turn on course.
- Alternate scheduling number (VT-7): (601) 679-2321
- Figure out your own TACAN cuts. *(In Tabular View, input '@' in remarks)*
- For filing purposes, use the AP/1B entry/exit points.
- The IR-070 crosses the VR-1032 at multiple points.   You must contact Columbus AFB at DSN: 742-7840 or COMM: (662) 434-7840/7847 to deconflict.
- Entry point and exit point are the same. Ensure deconfliction with other aircraft at entry and exit.
- Warning: 2000' AGL tower outbound from Pt. E.
- High volume of crop dusters year round—may not be squawking.
- Do not overfly the 312' AGL tower located on the underground pipeline (IVO AP-1B Pt. C on the VR-1032). Over flight of this tower is not an option due to the possibility of an unscheduled release of approximately 2,000,000 cu. ft. of natural gas at 1500 psi. Avoid by 1 nm.

VR-1050 (DD-175)

ROUTE:

PT	DESCRIPTION	TP TYPE	LAT./LONG.
B	NATURAL BRIDGE	VISUAL	N3405.7/W8736
1B	DAM	RADAR	N3432.7/W8758.3
1C	BRIDGE	RADAR	N3455.2/W8803.3
1D	WAYNESBORO	RADAR	N3519/W8745.8
1E	RIVERBEND	RADAR	N3517/W8817.5
E	BETHEL SPRINGS	VISUAL	N3514.1/W8836.7
F	POCAHONTAS	VISUAL	N3503.7/W8848.8
1G	DUMAS	VISUAL	N3438.3/W8850.4
IP 2G	500' TOWER	VISUAL	N3428.6/W8843.7
TGT 1H	DIVIDED HWY BRIDGE	RADAR	N3414.23/W8824.8

REMARKS:

- File the exit point at CBM 355/045 then file to HAB → CHOOK to avoid airspace and to facilitate getting clearance from Memphis Ctr (307.0 or 120.8).
- Figure out your own TACAN cuts. *(In Tabular View, input '@' in remarks)*
- Bridge in mis-plotted on TPC. Plot coordinates above and use a VFR Sectional for target study. Permissible & advisable to incorporate VFR sectional into strip chart.
- A satellite image of the target environment is required.
- Schedule this route with Columbus AFB entering at the alternate entry point of B with your actual entry time. "ROKT 5XX PT B XXXXZ PT J XXXXZ 500FT 300KGS."
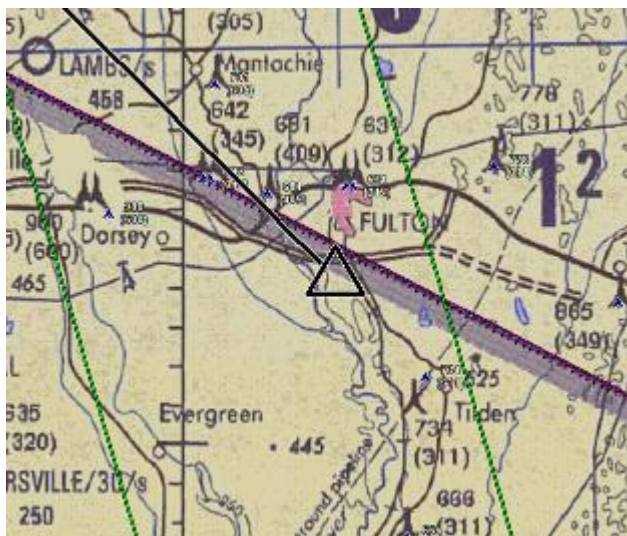
VR-1059 (DD-175)

ROUTE:

	PT	DESCRIPTION	TP TYPE	LAT./LONG.
	A	SALUDA	ENTRY	N3400/W8146
	1A	RR BRIDGE	RADAR	N3355/W8223
	2A	WASHINGTON *(NSA)*	RADAR	N3344/W8244
	1B	WARRENTON	RADAR	N3324/W8240
	1C	ROAD INTERSECT	VISUAL	N3258/W8228
	1E	MUNNERLYN	VISUAL	N3257/W8158
	2E	ROAD BRIDGE	VISUAL	N3256/W8130
IP	F	TOWER	VISUAL	N3248/W8100
TGT	1G	CHEMICAL PLANT	RADAR	N3245/W8034

REMARKS:

- Read AP/1B notes for route widths, altitudes, & notes and restrictions.
- Figure out your own TACAN cuts. *(In Tabular View, input '@' in remarks)*
- For filing purposes, use the AP/1B entry/ exit points.
- Contact JAX center on 379.1 or 322.5 upon exit at AP/1B (H).
- Target is misplotted on TPC (see below). Imagery recommended. There is no sawmill in the vicinity. May incorporate VFR Sectional into Strip Chart.
- Exit the route after the VT-86 target.

IR-083 (DD-175)

ROUTE:

	PT	DESCRIPTION	TACAN CUT	LAT/LONG
	A	DAM	ODF 247/002	N3441/W08320
	B	DAM	HRS 050/008	N3502/W08347
	C	DAM	VXV 173/028	N3527/W08348
	D	SYLVA	SUG270/046	N3523/W08313
	E	CANTON	SUG288/029	N3532/W08250
IP	F	HILL (6684')	SUG 002/022	N3546/W08216
TGT	G	DAM	SUG 048/030	N3545/W08150

REMARKS:

- Fly route at 9,000' MSL.
- Use doghouse with true headings for sim purposes.
- Read AP/1B notes for route widths, altitudes, & notes and restrictions.
- Comply with AP/1B altitudes for CST-1.
- T/O from KNPA, Recover at KAVL.
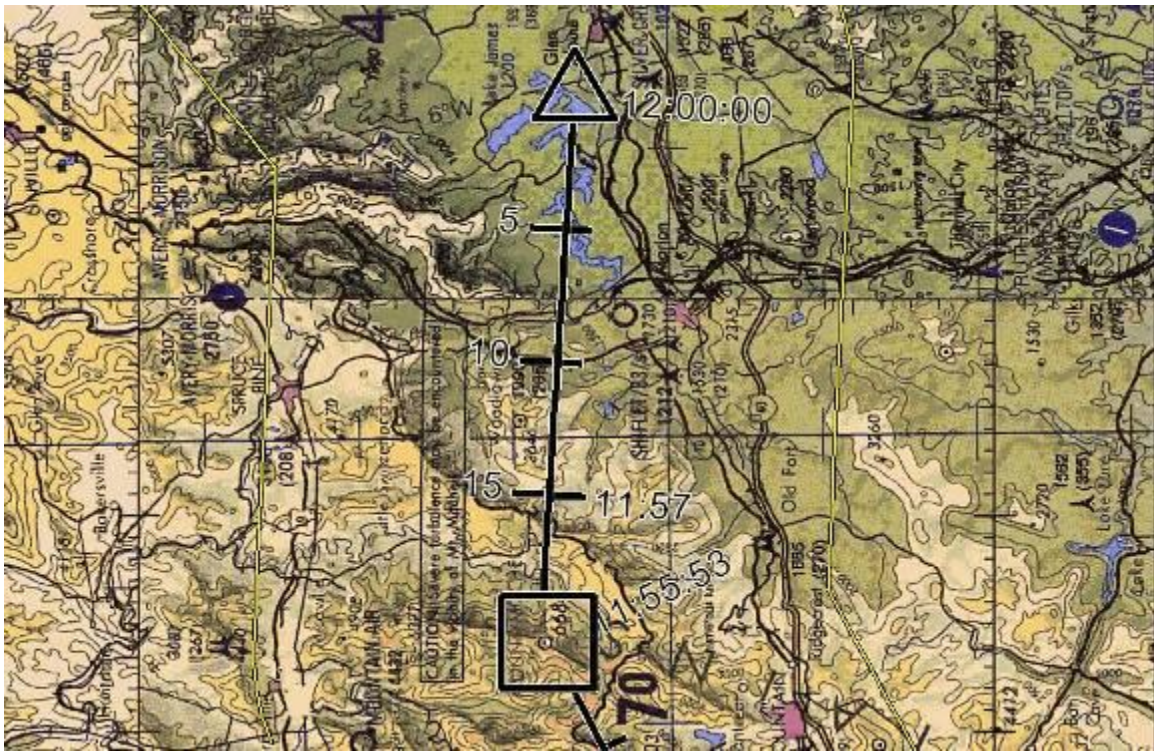
IR-723 (DD-175)

ROUTE:

	PT	DESCRIPTION	TACAN CUT	LAT/LONG
	A	FACTORY	HNN 048/014	N3855/W08149
	B	GAULEY BRIDGE	BKW 357/023	N3810/W08112
	C	DAM	BKW 133/014	N3738/W08053
	D	NARROWS	PSK 350/015	N3720/W08048
	E	WYTHEVILLE	PSK 251/020	N3657/W08105
	F	POWER PLANT	PSK 218/020	N3648/W08056
	G	HILL 4710'	HMV 091/031	N3628/W08129
	H	DAM	HMV 118/047	N3608/W08118
IP	I	PENINSULA	SUG 048/030	N3545/W08150
TGT	J	DAM	SUG 051/006	N3528/W08211

REMARKS:

- Use doghouse template with true headings for sim purposes.
- Read AP/1B notes for route widths, altitudes, additional notes and restrictions.
- CST-2 flown at 1500' AGL
- T/O and recover at KAVL
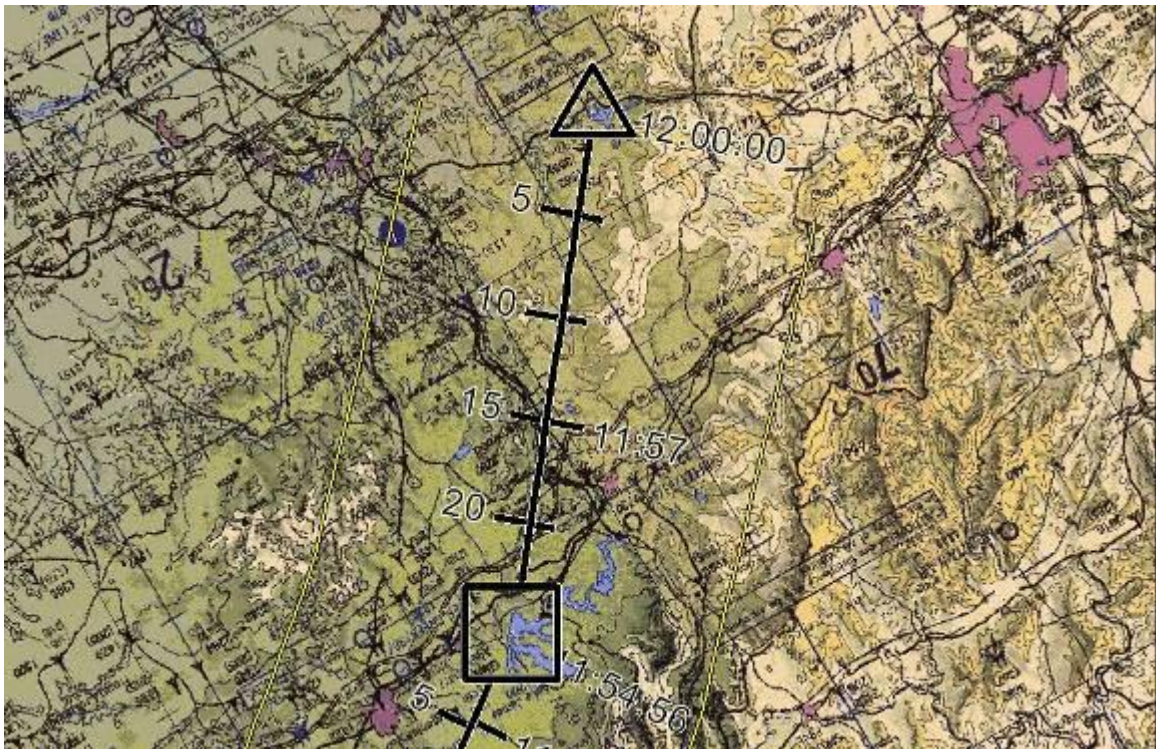
VR-189 (DD-175)

ROUTE:

	PT(CLOSEST AP/1B PT)	DESCRIPTION	LAT/LONG
ENTRY	A	Your Choice	
TGT	F	DAM (W. End of the lake)	N35 06.8 W093 29.6

REMARKS:
- For scheduling call: (479) 573-5502
  Alternate numbers: (866) 520-8890 or (817) 541-3444
  (Do **not** call (870) 932-4608)
- Climb to 1,500'AGL 1 min prior to the Target to avoid Cedar Creek Airport.
  - Avoid Non-published noise sensitive area at N3442.0/W09317.0 by 1.5NM.
- Route Exiting Procedure: Turn right to 310 and continue northwest until intercepting the FSM 075 radial prior to proceeding direct, to avoid R2402 Southeast of KFSM.
- Due to varying hours of operation held by the scheduling authority (Arkansas ANG), this route is oftentimes difficult to schedule. When planning this route, <u>call early.</u>
- This route does NOT terminate in the HOG MOA. Be prepared to explain this to the scheduling activity when planning this route.
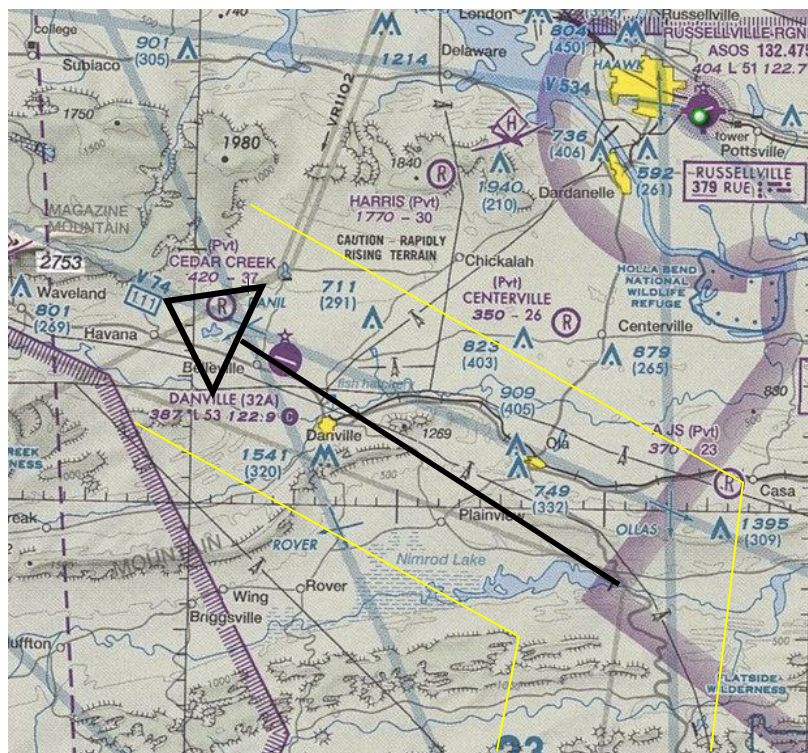
VR-1055 (DD-175)

ROUTE:

	PT(CLOSEST AP/1B PT)	DESCRIPTION	LAT/LONG
ENTRY	C	*Your Choice*	
TGT	H	MILL	N3245.6/W08653.0

REMARKS:

- Schedule this route on the route scheduler as follows "ROKT 5XX PT C XXXXZ PT H XXXXZ 500FT 300KGS.
- The route scheduler will not deconflict you with the VR-1056 at Abernathy. NFS must personally deconflict this route.
- Non-published noise sensitive areas for the VR-1055
  - N3436.5 W08458.8 (Zack airfield: avoid by 3nm or 1000ft)
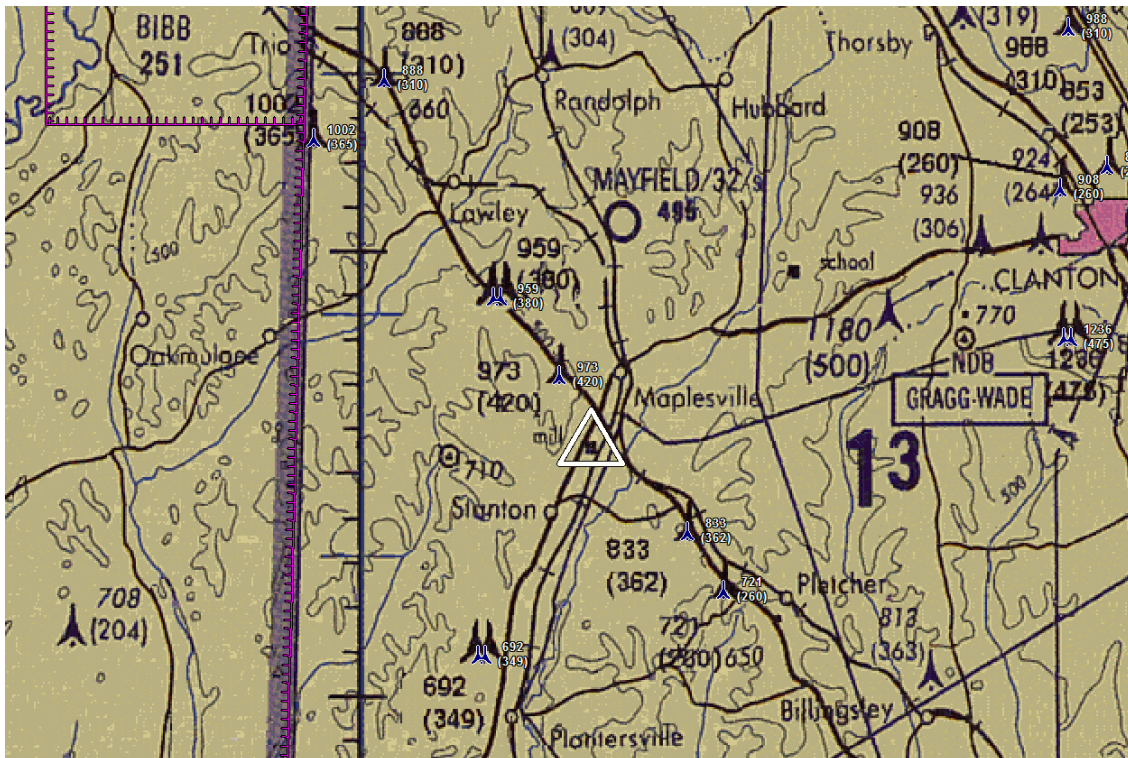
VR-1056 (DD-175)

ROUTE:

	PT(CLOSEST AP/1B PT)	DESCRIPTION	LAT/LONG
ENTRY	C	*Your Choice*	
TGT	J	SAWMILL	N3443.3W08427.1

REMARKS:
- Do not file through Lagrange enroute to VR-1056 to avoid a feeder fix into KATL.
- Non-published noise sensitive areas for the VR-1056   N3515.5 W08544 (Town of Tracy City)
- Avoid nuclear power plant IVO Pt G (Watts Bar) by a minimum of 3nm.
- Schedule this route on the route scheduler as follows "ROKT 5XX PT C XXXXZ PT J XXXXZ 500FT 300KGS.
- The route scheduler will not deconflict you with the VR-1056 at Abernathy. NFS must personally deconflict this route.

VR-1182 (DD-175)

ROUTE:

	PT(CLOSEST AP/1B PT)	DESCRIPTION	LAT/LONG
ENTRY	A	*Your Choice*	
TGT	F	DAM	N3531.5/W09041.0

REMARKS:

- For scheduling call: (479) 573-5502
     Alternate numbers: (866) 520-8890 or (817) 541-3444
                    (Do **not** call (870) 932-4608)
- Upon exiting the route file for Marvell (UJM) to avoid Memphis Class B airspace
- FAA directed pop-off frequencies – Pri: 135.3/335.8, Sec: 133.55/309.7
- Exiting the VR-1182 climb VFR direct Marvell. Contact Memphis Center ASAP 135.3/335.8 Primary or 135.87/269.35 Secondary. Cross the Memphis 285 radial at or below 5,500' MSL and cross Marvell at or above 13,000' MSL to avoid the Memphis arrival corridor.
- Due to varying hours of operation held by the scheduling authority (Arkansas ANG), this route is oftentimes difficult to schedule. When planning this route, <u>call early.</u>

LOW LEVEL / RADAR PLANNING

Overview

The purpose of this guide is to provide you with supplemental information for successful creation of charts and other planning materials required for the Advanced Phase of UMFO training. The planning that you have previously learned in Primary and Intermediate training still applies to chart making in VT-86. However, there are some differences which will be further explained in this guide. The work you put into this program now, taxing and stressful as it may be, will pay strong dividends in the end. Do your own work.

Pubs Review: Charts

The chart planning is done in the NAMO Classroom or the room located in the VT-86 academic building across from the instructor's office. Currently we do not use either JNC or GNC charts in VT-86. These are for long range planning and are not required for VT-86 flights. The charts required for planning your events are all contained within JMPS. Enroute charts are provided for AirNav flight convenience.

> **ONC ....1:1,000,000** (Used as an overview chart for entire Strike segment)
> **TPC ....1:500,000**   (Used as the primary planning chart for all phases)
> **JOG ....1:250,000**   (Used to enhance a turnpoint or target)
> **VFR Sec ......1:500,000**   (Use for route/target study, entry point acquisition)

Students shall not print imagery for Turnpoints, IP's or Targets from the JMPS computers.   Far superior imagery can be found on maps.google.com or maps.live.com. Use of this imagery for route study and for briefing is encouraged. As a last resort, students may utilize the imagery binders at the CDO desk to make copies. In order to keep the costs down, prior to printing out charts students should make every effort to carefully review the "Print Previews".

JMPS Planning Classroom

KEEP IT CLEAN!!! No spray adhesive is allowed inside the T&C building. No eating or drinking allowed in the planning rooms. Clean up your paper scraps and trash or use of the planning rooms will be revoked unless an instructor is available to supervise. The most recently checked-in class is responsible for cleaning the JMPS room at least once a week. After COB, ensure that the building is secured properly before departing—consequences for security failures may be severe. Computers are cleansed of all files regularly, so store personal planning files on the designated Student Drive. For the protection of our planning network and your own computer, government-licensed antivirus software from Symantec is provided on the desktop free of charge. It may be legally installed at home to provide protection at absolutely no cost. The DoD and VT-86 make no guarantees with respect to Symantec's software. Issues with the computers or printers should be annotated and reported as soon as practical to T&C staff and the Strike Stage Manager for resolution.

Pubs Review: Military Training Routes (AP/1B)

The purpose of military training routes in general is to gives military aircraft an area in which to practice tactical navigation procedures. There are different types of routes, but we are concerned with only two – VR and IR routes. These two types of routes give us something special ...a license to speed. Since we will be below 10,000 feet, we will need to have the legal means to exceed the 250 KIAS limit. It is important to remember that until we are on the route we cannot exceed the 250 KIAS limit.

The AP/1B is the official DOD/FAA approved route. The route description includes the following:
- Lat/Long
- TACAN cut
- Altitude blocks
- Avoidance areas
- Special Operating Procedures
- Originating and Scheduling Activities

While most of the turn points we have given you in the Strike Segment Planning Guide (SSPG) correspond to the AP/1B points, some do not. If a TP is within 6 NM of an AP/1B point, it will be assigned the same letter. If a TP falls outside the 6NM range, it will be given a number/letter designation depending on which AP/1B points it falls between. For example, if a TP falls between AP/1B points B and C, it will be named 1B.

Scheduling MTRs

You will be scheduled for either a stereo route or a DD-175. If you are scheduled for a stereo route, the route should have been scheduled for you. Check the web-based Route Manager for the time and route. Make any appropriate changes and/or bring it up to the instructor before the brief. Students must be able to access the route scheduler by RN-1. Contact TIMS support at x5489 with any questions.

Students will have a printed out copy of the route schedule for all local IR and VR routes *or* have the route scheduler displayed on the briefing room computer to show the MC the scheduled route times.

If you are scheduled for a DD-175 you will need to schedule the route yourself on the route manager or via phone. Keep in mind, all routes must be scheduled at least **two hours** prior to your scheduled entry time. This is an FAA requirement for NOTAM purposes and is not flexible. To accommodate this route scheduling requirement, you should schedule your route entry time for the following day based on the 'rough' schedule before the scheduling authority has closed for the day.

When scheduling a route there are some key things to keep in mind. First, there are sometimes two separate activities with military routes. The Originating Activity is the agency that owns the route. The Scheduling Activity schedules the route. These two activities may or may not be the same. Try the Scheduling Activity first. If they do not answer, then try the Originating Activity. In addition, some Scheduling Activities keep short hours. It is acceptable to ask the strike schedules officer after 1200 what your callsign is for the next day IOT schedule your route early. Not scheduling your route early enough is unacceptable.

DD-175

Most of your flights in the early stages will be stereo routes. The stereo route name will be listed on the schedule. If this is the case, a DD-175 is not necessary; practice DD-175's <u>are</u> required for stereo sims, but not required for stereo route flights.

If "DD-175" is listed on the flight schedule, then you will be required to create a DD-175. A final copy of the DD-175 should be completed with no mistakes, and ready to enter on the Weather Briefer by brief time. All DD-175 flights use SBR-1/A for aircraft type and code.

When entering your entry and exit points onto the DD-175 you <u>must</u> use only the AP/1B points and not the actual point you plan to start/end at (i.e. SSPG points). Remember, the AP/1B points define the route. Therefore, it is vital that you use the correct entry and exit points for planning purposes. You may also need to refer to the AP/1B points with ATC when airborne.

NOTAMS

Make sure you have reviewed and written down the applicable NOTAMS for all departure points, destinations, alternates, and any planned delay airfields. You should also check the NOTAMS for all Navaids you intend to use to ensure they will all be in service. You should avoid filing to an out of service Navaid if at all possible.

Weather Brief (DD-175-1)

A weather brief is always required when going flying. The DD-175 and the DD-175-1 or canned brief are required to be within the student's reach during the event. It doesn't matter if it is CAVU, you need one. There are several sources in which to obtain a weather brief:

- Primary method is the Naval Weather Briefer: *https://fwb.navo.navy.mil/fwb11/*
- Via the phone. You may call Weather to get your brief and have them fax it to the squadron. The Weather Shop's number is x3644. VT-86 fax is x3020
- Naval Station Norfolk main Wx office is available 24/7: 1-888-PILOT-WX
- Must have proof that the weather conditions were available for us to go flying, i.e., a hard copy.

If your flight has been delayed for one reason or another and your brief expires, call the Weather shop and get an update. Additionally, if the weather is questionable, take note of observed weather along your route of flight. If for example your route takes you around McComb and just south of Meridian, check what those places are reporting for observed weather. Be informed. In order to legally fly a low level weather must be at least 3000/5.

NAV Pubs (FLIP)

All pubs are available in the Student Ready Room in the corner. Take only what you need. If the pubs you need are not there then proceed to VT-10. Squadron pub bags in the Ready Room are to be checked out if going on a cross-country. You as the individual checking out the pub bag are responsible for ensuring that the appropriate pubs are available before going flying. It will look unfavorably upon you if you were to discover that you don't have the correct pub while enroute. **Have your pubs ready when flying so that you avoid unnecessary tasking from the crew in the back,** *(i.e., you shouldn't have to ask anyone behind you to drag out a chart or plate because you didn't think of it earlier).* If you are unable to get appropriate pubs, let the instructor know in the brief. Pub bag accountability is the SDO's responsibility. The SDO shall ensure that the individual taking the pub bag signs it out.

Doghouses (Low Level)

Doghouses will be used on every chart made in VT-86. You will be required to use the official VT-86 doghouse located on the computer. They contain the following information:

MC - Mag Course to next turnpoint
TC - True Course to the turnpoint (alternate doghouse—used for CST events)
DIST - The total leg distance to the next turnpoint
ETE - Leg time to the next turnpoint
ESA - Emergency Safe Altitude. This is the highest of:
    1. Block altitude (purple number) on chart plus 500ft.
    2. The highest obstacle w/in 10 miles of crs, rounded up to the nearest 100ft, plus 1000ft. in non-mountainous terrain, plus 2000ft in mountainous terr. (Comp Routes).

MCF - Mission Completion Fuel. The fuel required to complete planned mission conduct (route of flight, low-level or tactical maneuvering) and return to planned destination via standard routing (including approaches for training or weather) to arrive with:

    VMC: Enough fuel to fly from your destination to your alternate and land VFR with 1,100 lbs.

    IMC: Enough fuel to fly from your destination to the farthest IAF at your alternate, shoot an approach and land with 1,100 lbs.

    MCFs shall be labeled on your chart with point that fuel state corresponds to. (i.e. MCF @ B 5.1)

BINGO - Bingo Fuel: Fuel required to fly from a route point to your planned destination via standard routing to arrive with:

> VMC: Enough fuel to fly from your destination to your alternate and land VFR with 1,100 lbs.

> IMC: Enough fuel to fly from your destination to the farthest IAF at your alternate, shoot an approach and land with 1,100 lbs.

> For Bingo fuel planning use the data on pg. 32 of the T-39 PCL up to FL280 then max range fuel numbers to account for the extra distance.

TP TACAN CUT - Information entered in the "Description" section on Tabular View is entered in this block. Use the TACAN cut defined in this planning guide.

EMERGENCY DIVERT – For every point a Range/Bearing to the nearest suitable emergency divert field (5,000' runway) shall be listed in RED in the margin of your chart.

Mini Doghouse

On all strip charts, on each leg draw a miniature dog house for the outbound leg. Orient the doghouse in the direction of the next leg and write in the outbound course.

Seat Swap Specifics

Students switch seats on RN-1,2,3 and LL-1,2. On radar navigation flights, this will be accomplished while flying from the target to the re-entry point. The second student will make his two minute prior call from the back seat. After marking on the target, the first student will accomplish the first five items of his wings level call (ending with DRing the cursor), and then exit the front seat.

On the low level, this is accomplished by conducting an airborne swap while orbiting. When Student A hits the target the pilot will make a climbing left hand turn to keep the target in his sight and make a slow orbit at 1500'. The students at this time will swap out and Student B will take the front right seat. Once the Student B is ready, the pilot will hit the target on the outbound heading to the next turnpoint. Therefore charts are <u>not</u> required to have a turn radius coming out of the first target going to the first turnpoint on the second half of the route. (During the orbiting process, plan to use 100 pounds of fuel).

Wind Ts: Wind Ts or bullseyes are required for every leg. Round leg heading to the nearest 10°.

Checkpoint Selection (Low Level)

There are some useful pieces of information that will help you get through a successful Low Level flight. There are also very obscure things that will get you into trouble. You have to decide what will be good and what will be non-beneficial.

Throughout your training in VT-86 you will find that the most beneficial pieces of information out there comes in the form of **<u>vertical development</u>** when flying at 500ft. This will give you two important pieces of information: course and time. It will take you one, maybe two flights to determine how far away objects are in order to get a decent feel of course information. In this aircraft anything that is one wing length away is considered to be ~ ½ nm. Picking something as close to course as possible obviously is more beneficial than something that is far away. This means if you have a 500ft tower 3½ nm left of course and a 250ft tower on course, you would get more information from your 250ft tower than your 500ft. This doesn't mean you shouldn't look for the 500ft tower, but more accurate info comes from something closer to course than farther away.

When choosing a checkpoint, pick something that is easy to find. Again look for the vertical development first. This includes towers, fire towers, buildings, and significant terrain. This last item applies more to the Composite Stage, but can be learned at any stage.

Horizontal development is a secondary means of course information at 500ft. There are several types of useful horizontal checkpoints, but there are also some ambiguous ones as well. Things such as primary roads, dual lane highways and interstates are fairly reliable pieces of information. Power lines, single line rivers, secondary roads, and underground pipelines are fairly common and may not be totally reliable. Power lines have been erected which are not always on the charts. Single line rivers, creeks etc. may have overflowed or dried up in some cases and may not give you accurate information.

It can be difficult to predict how a circle town will actually appear. Recent satellite imagery gives the best information. When studying circle towns, look at what is around the area to get a feel of how the town will show up. Lines of communication are a good indicator of development of any city. For example, check if there are primary roads or secondary roads around the town. Look to see if there are railroads in town. Determine its proximity to a major town or magenta area. These are significant in determining how well you will be able to acquire your circle town.

> *Key things to keep in mind regarding checkpoints:*
> - Annotate all checkpoints by labeling time to the nearest <u>second</u>
> - Do not select anything inside of the turnpoint circle.
> - There is no set number required, but at least one every 2-3 min is advisable
> - Look for funneling features and "get-well" points
> - You may use anything you want, but be prepared to defend your selection
> - You do not have to find a certain percentage of them.

Low Level Hazards

Hazards to flight shall be annotated on all charts. Hazards include the following:

- **Towers:** Within 5nm of course whose altitude is 400 FT AGL or greater. These must be verbalized on the route as a hazard as well.
- **Hard & soft surface airports within 5nm of course:** These should be avoided by 3nm or 1500'AGL.
- **Crossing routes:** Use VFR Sectional map data to locate crossing routes identified by the AP/1B as hazards/conflicts. Draw a single, labeled arrow in green using JMPS in the approximate position of the crossing route, indicating direction of route. This notation shall not penetrate the route corridor.
- **High Terrain / Ridgelines:** On mountainous routes, the highest terrain per leg shall be annotated and briefed during the flight.

Emergency Airfield Selection

Emergency divert fields are required for all charts. Selection of diverts is up to you. Choose a minimum of 2 military and 2 civilian divert airfields. Be prepared to brief them at any time during the flight. A good starting point is the overlay file on JMPS. Requirements include:

- 5000 FT hard surface runway
- Civilian airfields – *annotate with a triangle*
- Military airfields– annotate with a square
- List the field identifier
- List the corresponding TACAN/ VOR associated with the field and approach and tower control frequencies
- Be familiar with their IMC capability – *published approaches, etc.*

Chart Potpourri

Basic strip chart size will be 8 ½ X 7¼"-8" when open and, folded in half, it should be 4¼ X 7 ¼"-8".

All charts are required to have the following information:
- Signature with a black ball point on the outside corner of the chart.
- Name, Class #, NPA-XXX/VR/IR-XXXX with a black felt tip pen on the outside.
- The date last CHUMMED annotated on the back (except for IR charts).
- The AP/1B expiration date
- A glued copy of the AP/1B as applicable
- A glued copy of the Strike Segment Planning Guide route description
- The corresponding ONC with the strip chart
- Enough VFR Sec or TPC coverage to visually navigate from the IFR cancellation point to the entry point (i.e. Navaid→Entry)
- Pop off frequencies shall be on the chart prior to brief time.

Alternate Planning

For local area operations, if the weather for NPA is forecast at or above 3000'/3, 1600# of fuel at the IAF will allow for full approach, waveoff, and direct to KPNS to land with the required 1100# reserve.

On the back of the jet log, plan the following 3 **alternate airfield profiles** as follows:

1. From destination IAF to furthest alternate IAF at last cruising altitude, airspeed and fuel flow. Plan for 400# for a full approach at the alternate, and to land with 1100# minimum.

2. From destination IAF to furthest alternate IAF using destination IAF altitude and max range airspeed. At NPA this is 16,000 ft (Hi-TACAN) or 2200ft (Low-TACAN), 300 TAS and 2200 PPH. Plan for 400# for a full approach at the alternate and to land with 1100# minimum.

3. Compute BINGO profile from missed approach or wave off at destination airfield direct to alternate airfield. Use p.32 of PCL (Divert from Sea Level…) or the "Divert Data" in the IFG. Note that this data does not include 400# for an approach.

Notes:
1. Profile #1 and #2 assume IFR at alternate. If alternate is VFR, consider disregarding the 400# for the approach.
2. CNATRA 3710.7 Series states that all training aircraft must plan for an alternate regardless of weather if the destination is other than home field. MCF must include this extra fuel.
3. Destination and alternate fuel planning requirements are based on ETA +/- 1 hour.
   See OPNAVINST 3710.7 Series Figure 4-1, Filing Criteria

VT-86 accounts for 400# for each approach and therefore 1600# at the initial to arrive with our SOP landing fuel of **1100#** on deck (if destination is KNPA and PNS is the alternate). Plan on using 1100# as reserve fuel (#5 on the back of the jet log). Spare fuel may be as low as zero, as this is the fuel on deck above 1100#.

VT-86 Strike Fuel Planning

1. The Fuel Planning section on the Flight Log is to verify compliance with OPNAV 3710 and may not be used to calculate MCF.

2. All events shall plan for an approach (400 lbs) at the intended point of landing.

3. Spare Fuel is calculated by taking the Planned Fuel on Deck (PFOD) at your intended point of landing and subtracting Divert Fuel.

4. Divert fuel shall be calculated by using the Divert From Sea Level Chart on pg. 32 of the T-39 PCL or in the T-39 IFG. This chart will account for 1,100 lbs on deck at your alternate. This fuel shall include the fuel required for an approach at your alternate if required by weather.

  VMC: Enough fuel to fly from your destination MAP direct to your alternate and land VFR with 1,100 lbs.

  IMC: Enough fuel to fly from your destination MAP to the farthest IAF at your alternate, shoot an approach (400 lbs) and land with 1,100 lbs. (3,000/3 is a good cut off for if you need to shoot an approach at your alternate.)

6. Mission Completion Fuel (MCF) is calculated by subtracting Spare Fuel from the Estimated Fuel Remaining (EFR) at any point along your route or by working backward from your Divert Field with 1,100 LBS on deck.

7. Example: If your Estimated Fuel Remaining (EFR) at the Initial Approach Fix (IAF) is 2.3 (taken from the last line on the front of your jet card), your PFOD will be 1.9. This assumes you will use 400 lbs of fuel for the approach.

Calculate Divert Fuel. Assuming PNS is a valid divert and is VMC, your divert fuel is 1.2.

Subtract Divert Fuel from PFOD to calculate Spare Fuel.

MCF is calculated by subtracting Spare Fuel from your EFR at any point.

	VFR	IFR
EFR @ IAF:	2.3	2.3
Approach:	-0.4	-0.4
PFOD:	1.9	1.9
Divert Fuel:	-1.2	-1.6 (400 lbs for an app at PNS)
Spare Fuel:	0.7	0.3
MCF @ Start:	6.5	6.8

Briefs

Part of your professional training at VT-86 is to devise a plan for your flight and explain that plan and the route covering all the specifics and contingencies. As a student, you will be graded on your brief as part of your event. Observe briefs and practice briefing. The brief sets the tone for the event.

Review the Briefing Guide before you actually brief to understand the objectives and all of the items that need to be covered prior to the brief. Briefing items may point to or remind you of planning items. A solid plan is the first step in a solid execution.

One advantage of this command is that there are a variety of instructors from differing backgrounds who can provide a wealth of knowledge to you. Instructors have their own techniques for briefing. Some instructors will stress one area of importance, while others will stress another.

Start all briefs with a time hack. Use the Naval Observatory time. Do not continue with the brief until the hack is complete.

If briefing in the squadron or the trainer building, have the Admin portion written on a white board (see example). If briefing on a cross country or if a white board is not available, have the Admin portion of the brief prepared as per the guide printed on a piece of paper for each person in the brief.

Bring your junk jacket, MCG, PCL, and the Strike Segment Planning Guide to all briefs.

The first student in the flight will brief the pilot from the PCL prior to walking to the aircraft. The Mission Commander will brief Low Altitude Training Rules for flights at 1500ft AGL or below.

Flexing Routes

Bring all routes and jet cards for that type of flight (RNs, LLs, etc.) to the briefs <u>and</u> on the flights. Wind the jet card you expect to fly, but be prepared to fly any route. Frequently, we will have to change the route and it will require that you have a non-winded jet card available with you. There is nothing more upsetting to an instructor than someone who is not ready to go flying. **DON'T BE CAUGHT OFF GUARD**. (For Strikes and Comps, flexing will be fairly common.)

If you discover that the weather is marginal or that the route is unworkable due to other reasons (BASH, scheduling, TFR, etc.), be prepared to fly a different route than the stereo route scheduled. These routes listed in this guide are only *recommended* for each event. Weather and other variables will ultimately dictate which route you will fly. VT-86 has additional, pre-planned routes available for additional flexibility. It is an instructor's prerogative to flex to one of these routes when necessary—"Semper Gumby!"

Radar Navigation Planning Specifics

Although operationally you will likely fly many IR routes where you are not under positive radar control, here in VT-86 you will be, and therefore must obtain permission to enter the route, and clearance back to NPA after exiting. In VT-86 there are two such routes we use, the IR-037 and IR-040. These two routes correspond to the NPA-937 and NPA-940. The NPA-14 is a stereo route but <u>not</u> an IR route.

When planning to fly the IR-037/040, we will fly the route twice. Orbits will not be conducted because orbits are not allowed in positive controlled airspace unless we have permission from ATC. Thus we will have admin legs which must be planned at 270 KGS while proceeding to the entry point. This will occur in four separate cases. The first two will be as you approach point A from JERYS on both the IR-37 and IR-40. The second two cases will occur as you exit both of the targets to re-enter the route at point B. Keep in mind that you cannot exceed 250KIAS (~270GS) until you are actually within the route structure.

Correlation Point Selection (Radar)

Correlation refers to the use of geometric relationships to determine course information. Correlation points are used for positive identification of the turnpoint or target.

Interpretation of the radar presentation and operations will be covered in ground school classes and CBTs. When choosing correlation points there are a couple of things to keep in mind. First the radar will only see 45° either side of centerline. Second, the time gets short when conducting Turnpoint Procedures. With this in mind, don't try to look for something that is going to be off of your scope by the time you look at it. Leave yourself enough time to be able to look at the checkpoint. All correlation points will be annotated with distance to go to the turnpoint and distance left or right of the courseline. You should have at least 1-2 correlation points per leg. Some rules of thumb are as follows:

- Pick a point close to your turnpoint or beyond it. This maximizes time it is visible on the scope.
- Points closer to courseline are better, especially if it is prior to your turnpoint. This minimizes the math calculations to correlate.
- Single point, unique/obvious no-shows and hard returns work well. *Examples: Factories, power stations, river bends, lakes, dams, bridges, oil tanks.*
- Use towns as SA builders, but generally they are not precise enough to use for correlating the cursor.
- If the point you plan to use is not on the TPC than the chart it is on will be required. (i.e. at least a cut out of the chart with appropriate point on it.) EX; the cooling ponds at Hesler-Noble airport.

Remember, the purpose of correlation is to place the cursor within 1 mile of the turnpoint. Pick correlation points with this in mind. With solid correlation points, you should feel confident to turn on the correlated cursor even if you can't break out the turnpoint itself.

Chart Checks

Be proactive in the chart making process. Take the time to do the work and then compare with your fellow students. Once you have completed the charts, see your Personal Advisor for a chart check and advice on any other matters. A chart check is required prior to RST-1 and LL-1 and must be documented. You are ultimately responsible. If your Personal Advisor is not around, find any Strike instructor and be sure it is signed off in your junk jacket. Make sure your chart is 100% complete (ready to go flying) before asking an instructor for a chart check. If you have questions on anything, ask your Personal Advisor or any Strike instructor.

STRIKE PLANNING

Overview

Strike events are a combination of previous events. Not only will your Strike flight incorporate Airways navigation with Radar and Visual Low Level navigation but also you are responsible for controlling real world timing to the low level entry point.

The Strike mission represents a combination of all the navigation skills that you have learned in VT-86 thus far and is representative of the tasks you will be required to perform outside of the Training Command. Real world time control has been added as it is a primary means of deconfliction. Your ability to be at the right place at the right time will directly affect mission safety and success for you and for coordinating assets.

In Strikes, aim to perfect TPP and low altitude radar work.

Charts

The strip chart requirements remain the same as on previous flights. ONC charts with the route and diverts are required for all strip charts. Focus on target study; consider a JOG or VFR sectional to amplify the target. This planning guide dictates which legs are visual and which are radar. Radar legs are flown at 1500ft AGL and visual legs at 500ft AGL. All strip charts used at VT-86 will be constructed to the following size specifications:

- Chart folder or backing size – 8.5" x 7¼" -8"

It is recommended that you thoroughly check your charts before printing them out. This is to save ink and time for you to avoid having to reprint your charts. Include enough TPC/VFR Sec coverage prior to the entry point to aid in entry point acquisition.

The routes are interchangeable and must all be complete and present for all Strike briefs.

NFS's must have the high level timing plan for each route to and from the destination. A 20nm radar prediction is required for each target! Brief with your prediction.

Scheduling

The student is responsible for scheduling the route. Get the initials of the individual at the Scheduling Activity. Scheduling may occasionally take place the morning of the event due to working hours of the Scheduling Activity. The Activity will require at least 2 hours notice prior to entry. Routes are usually scheduled on 10 or 15 minute intervals (ex. schedule 1210 not 1207). Students who are eligible to fly a Strike or COMP route on the following day may, after 1200, ask the Wingleader for callsign and take-off times if the rough schedule is not yet available.

Control Time

A control time is a real world hard time, it does not change. For Strikes, the low level route entry time is the control time. Timing is planned backwards from your entry time to give you the take-off time. You will be held to plus or minus 2 minutes on your entry time. Strive to be plus or minus 30 seconds. Cover your timing game-plan thoroughly to include no earlier than (NET) and no later than (NLT) takeoff times. For no later than/no earlier than times, students shall include the +/- 2 minute window for route entry timing. No computer generated timing matrix is allowed to be used in the brief or the flight to calculate NET/NLT times.

Be able to explain each of the factors you took into consideration when calculating your times including altitude selection, airspeed conversion from IAS-TAS-GS, high level navigation distances, and fuel associated with No Earlier Than and No Later Than Times.

No Earlier Time (NET) / No Later Time (NLT)

Calculation of <u>NET</u> time for Strikes:
> *Figure out your minimum airspeed in the following manner:*
> **IAS:** 200 KIAS is the minimum airspeed the T-39 can fly for high level timing via VT-86 SOP.
> **TAS:** Take your altitude and multiply it by 5 kts to take into account the change in TAS due to the 2 degrees/1000' temperature change.
> **GS:** Figure out your winds at altitude and apply them to your TAS.
> Apply your minimum ground speed to your timing matrix, flying the black line.
> Per the MCG, the entry time standard is +/- 2 minutes from the preflight time. Therefore, subtract 2 minutes from the time figured out in the previous step, and that is your NET time.

Calculation of <u>NLT</u> time for Strikes:
> *Figure out your maximum ground speed in the following manner:*
> **TAS:**
>> Airspeed limitations of the T-39:
>> - Below 21,500': 350-365 KIAS
>> - Above 21,500': .8 IMN (which equals TAS, use .75 for planning purposes)
> **GS:** Figure out your winds at altitude and apply them to your TAS, or Mach.
> Apply your maximum airspeed to your route of flight, flying the shortest route.
> Per the MCG, the entry time standard is +/- 2 minutes from the preflight time. Therefore, add 2 minutes to the time figured out in the previous step, and that is your NLT time.

> Figure out how much additional gas you will burn with the higher A/S & compare to your MCF.
> *Rule of Thumb:* Fuel flow will increase 150lbs/hr (at altitude) per 30kt speed correction.
> Make sure you take into account the difference in flight time (should be shorter, so fuels might be a wash or better).

NOTE: No orbiting is allowed AT ANY TIME DURING EVENT, unless safety of flight dictates otherwise (i.e., have to orbit to enter route within scheduled entry window because of poor planning or unplanned event). In this case, orbiting at a prior TACAN, not the entry point, is preferred. Consider that you may have to cancel IFR in order to orbit.

Jet Log Use

Now that you are concerned with controlling your timing, you should use more precise times on the jet card. Round to nearest 6 seconds rather than nearest 30 seconds and use the ETA block. The high cruise portion will normally be planned at 390 KTAS and the descent portion will be an average of 300 KGS therefore you must have a start descent point as a separate line on the jet card.

Students <u>shall</u> wind jet card for their planned Strike or Composite route. Do not use your jet card or High Level timing stick diagram for navigation in the aircraft.

Jet logs are required for all Strike Events.

Fuel Consideration

Whether you are carrying 700lbs or 200,000lbs of fuel, you will always be looking to be as fuel efficient as possible to maximize your range and give you more options when the weather turns sour. For altitude, consider the distance you are going. Significant increases/decreases from max range airspeed will increase your fuel flow. Speed up and the engines are burning more gas than optimal, slow down and you increase your AOA causing more drag and thereby burning more gas. Slowing below max range is actually more inefficient than flying fast due to the extra fuel required to accelerate back up to max range airspeed once you are back on time. Odds are you will have to do some speed correction to get back on time. Remember that when it comes to saving gas, geometry is generally the best option because cuts will save both time and gas.

Do not plan a Mission Completion Fuel (MCF) greater than Expected Fuel Remaining (EFR)! That is UNSATISFACTORY. Ask your personal advisor or the mission commander for help in planning something that works BEFORE THE BRIEF.

Descent

Plan your descents at an average of 5 nm/min. A good gouge is to plan your descent point when equal to twice the altitude you must lose, plus an extra 10 nm. This yields approximately 2000 ft/min. Example: If you are at FL270 and are descending to 2000ft MSL, your descent point should be 60 miles from where you want to be level. Be sure to brief the MSL altitude to which you plan to descend in order to arrive at 500'/1500' AGL over your entry point.

One technique to successfully accomplish this is to pick an intermediate point and tell ATC the exact altitude you want to cross that point. e.g. request descent 70 miles prior to Vulcan VORTAC to be at Vulcan at 10-thousand.

Active Runway

Plan to T/O on the worst case scenario runway and add 10NM for the vector before being cleared on course. E.g. NPA to TEEZY to JERYS, plan on departing on RWY 7 and being on the 150 vector for 10NM. Consider how the active runway at intermediate fuel stops effects planning as well.

Routing

To use a cut-off you need to have it built into the plan, i.e. don't draw a straight line from take-off to entry. Be sure that the cut-off airspace will be usable, e.g. a restricted area on the inside of your route may cause center to deny your request to go direct.

Consider how long point to points would be executed if forced to do an almost direct route.

Constant Groundspeed

Consider predicted winds and choose an appropriate average ground speed. Plan each leg at this single ground speed. Although 390 TAS is a decent rule-of-thumb, the NATOPS p.19-43 has the Max Range vs. Wind chart, which should be considered when selecting a planned ground speed. Then fly using whatever throttle setting is required to achieve that ground speed on each leg. The advantage is that a constant GS gives you a constant rate over multiple legs, so calculations are easy. The main disadvantage is that even if you are on-time you will have to adjust the throttles each leg depending on the winds.

Timing Control Methods

There are 2 ways to adjust your timing. You can use GEOMETRY to fly greater or fewer miles and you can use the THROTTLES to speed up or slow down. You may use both methods independently or a combination of the two if necessary.

Geometry

1. Direct:

Another way to use cut off is simply to calculate time of arrival if you were to turn direct to the next navaid at current time. If you estimate that a turn direct will put you there "on time" then it is time to turn.

Example: You are 30 DME from CEW and you estimate you will be 3 minutes late. Your next turn point is MGM. You dial up MGM in Nav-1. The DME reads 78 NM. Currently you have a slight tail wind but a northerly turn to MGM will give you a cross wind, so you estimate you will maintain 390 KGS which was planned. Your pre-flight ETA to MGM is 1005. The time now is 0953. Updated ETA to MGM would be 1005 if you turn now: 78NM / 6.5NM/min = 12 minutes. 0953 + 12 minutes = 1005.

2. To burn time at the entry point, there are several geometry options:

   a. Follow a natural terrain feature into your entry point
   b. Arc around the entry point at a constant distance, and therefore a constant time to the entry point.
   c. Offset away from the entry point and turn inbound on heading (may be needed to enter route on first leg's heading)

Throttle

1. Total Distance/Total Time (primary method of timing control):

   Total Distance (NM) / Total Time (Min) = GS in NM/Min

Advantages: Spreads the throttle correction out over as long a time as possible. Time out will be at entry so you don't have to remember to take out.

Disadvantage: You may be so far off time that you will exceed aircraft limits. (i.e. you need to use geometry) Math can be cumbersome. Use nearest whole minute to simplify.

2. Gate Method

The Gate Method is an easy way to do Total Distance/Total Time. It is based on fractional math (e.g. 30 min is 1/2 of an hour so at 30 minute to go you can simply take your Total Distance and multiply it by 2 to get a ground speed to fly). If you are controlling your time to the descent point no modification is required. TD (to decent PT) x 2 = GS. If you are controlling your time to the entry point then you need to add 10NM to your distance. (TD + 10) x 2 = GS. This can be applied to any fraction of an hour.

Examples for controlling time to the entry point:
30 Min Gate: (TD + 10) x 2 = GS
20 Min Gate: (TD + 10) x 3 = GS
15 Min Gate: (TD + 10) x 4 = GS
10 Min Gate: Distance = IMN
6 Min Gate: Distance = GS

3. Real World Times

Having your Real World Times (preflight times) at each intermediate point will allow you to judge quickly if you are on timeline or not, or if you are approaching timeline. For example, you planned to be at McComb VORTAC at 1223 and you mark on top at 1226, you can quickly ascertain that you need to lose three minutes, either with throttles or geometry. Real world times are to be notated on the planning diagram.

For high level timing the student may not request less than 200 KIAS or more than 350-365 KIAS or .8IMN not to exceed aircraft limits (.75M for NLT planning purposes).

Brief

Start with a time hack as always. Identify a clock for the crew to use.

Cover your High Level Timing game plan thoroughly. Brief the following at a minimum:
- Time control methods that you are intending to utilize
- Planned groundspeed, altitude, routing
- Preflight winds
- NET/NLT & how these were derived/calculated
- Potential geometry cuts
- Possible throttle options
- MCF at entry
- Discuss contingencies: *Example:* If we take off 5 minutes late, what are the best options to get back on time? How late can we take-off and still make an on-time entry? What will be the impact on fuel?

Ground Ops

Timing doesn't start at gear in the wells--it starts on the ground. If you take-off on time the rest will be easy. You must set the pacing on the ground. Start getting a feel for how long it takes to go from walk to take-off and taxi to take-off. Also get in the habit of noting the time at taxi and take-off. Check the direction of the duty runway one last time and adjust take-off time if necessary. Be sure to keep the pilot aware of the on-time take-off time. A good rule of thumb is to walk (from VT-86 to L-3) 45 minutes prior to takeoff at NPA, and walk to the jet 20-25 minutes prior to take off when at a non-local field.

Strike Flight Execution Notes

Strive to arrive at your Strike entry point on time by doing a combination of setting the correct mach number and/or using geometry to shorten/lengthen your flight plan route. Your ultimate goal when setting an enroute mach number is to control the groundspeed of your aircraft. The Strike Seminar lecture will cover these decisions in detail.

Take control of your timing. Don't let it control you. Speeding up/down to some speed that "feels" right, with the attitude that you will wait and see what it does for you at the next turn point is time reaction; you are striving for time control. An educated estimated IMN will mitigate the impact until further calculations and a firm groundspeed check can be accomplished. The key is solving the time-distance-speed problem to make a control time.

BDHIs are not required on Strike flights when the turnpoint/target environment is in sight. Students may direct the pilot with a "left", "right", "steady up", to overfly a turnpoint/target on both radar and visual legs. Students will also note (for their analysis) their heading when they crossed the point.

Instructors may change which legs are designated radar/visual with adequate notice to the student.

Students are not to employ the radar on visual legs or visual techniques on radar legs. Students may DR the cursor on visual legs for the purpose of habit pattern, but will not navigate with the radar or use it for wind analysis on visual legs. Students shall look outside the aircraft on ALL turns unless specifically directed to by the Pilot or MC to remain inside. Be sure to verbalize any change in altitude during the MOT call and be ready to change the base airspeed required for 300 TAS any time the altitude changes.

STRIKE TIMING SIMULATOR

Overview

NFSs will be briefed in detail during Strike Seminar on several timing methods and how to prepare a timing gameplan. Timing methods include TOTAL DIST / TOTAL TIME to the descent point, TOTAL DIST/TOTAL TIME to the entry point, the gate methods and use of real world times. NFSs should have a technique ready to try and their mission planning should be complete to include a stick diagram of the route including gate times at each point so you can quantify how late or early you are. For example, NFSs should have the time saved associated with geometric cuts, distances from each point to the entry pt., times to walk & T/O, and NET/NLT times for each scenario. The NFS should strive to work in LOCAL times. This two hour sim goes fast, so expect to hit the high points and then the sim.

The following mission planning materials are required for the Strike Timing Simulator:
1. DD-175 for scenarios 1, 2, and 3.
2. WX for scenarios 1, 2, and 3.
3. NOTAMS for scenarios 1, 2, and 3.
4. Completed Charts are not required but a valid plan for finding the entry point is.
5. Jet Logs for scenarios 1, 2, and 3 to include an MCF at your entry point.
6. Complete high level routing diagram for scenarios 1, 2, and 3.

For each scenario, the NFS will base their timing plans on a simulated 0800 T/O time. This is just like you would do if the flight schedule had a 0800 T/O time. T/O time should be close to this to make an entry time on an even ten minutes. For example, if a scenario takes 56 minutes to fly, then the entry time you should strive for would be 0900 with a takeoff time of 0804. Each scenario will begin with everything on and at the hold short. The only thing that needs to happen coming out of freeze is the line-up checklist and a call for takeoff.

Scenario 1:   KNPA – JAN300029 (VR1032 Pt. A)

Once airborne, NFS should address if they are early/late then give the pilot an appropriate airspeed to fly 1,000 ft. prior to level off depending on the situation. NFS must determine what options they will exercise to fix their timing if needed. Geometry vice speeding up should be primary. Cut with an axe, then refine. However, keep in mind that a small speed correction over a long distance to fix a small problem is also still acceptable. Once an option has been selected, TOTAL DIST / TOTAL TIME should be practiced. This should be the primary time control method. NFSs can expect to be briefed on these methods in Strike Seminar. In your Strike Seminar class, the NFS can expect a discussion on Mach number, true airspeed, and ground speed as well as descending early/late, canceling IFR, staying above 10K, pilot's discretion descents, VFR maneuvering such as following a road, and rolex (last resort). While all these methods will be taught, the OUI should have a plan laid out for the flight or simulator event. For fuel planning purposes, plan to land at KMEI.

Scenario 2:   KTCL – VUZ304043 (VR1050 Pt. B)

NOTE: The VUZ304043 is a point to allow for entering the route legally, because the VT-86 point (Dam) is mid-leg. Again, the instructor may choose to input a late or early situation for the NFS to work out. This is a short hop, so you'll have to work fast to come up with a recommendation for timing. First use geometry and then adjust airspeed as needed. NFS may elect to cancel and navigate VFR to the entry point using rivers, hills, roads, etc even in the simulator. Be alert to Columbus' MOAs, and Birmingham's Class C airspace. Watch your checklists and pacing. The challenge is to complete all checklist items prior to starting the route without losing SA or straying from Aviate/Navigate/Communicate/Checklist priorities. Scan for VFR traffic after cancelling IFR, especially when descending. For fuel planning purposes, plan to land at KNPA.

Scenario 3:   KNPA – VUZ121031 (VR1031 Pt. F)

It is very easy to run late on this route and tight on fuels. Again, it is the instructor's option to induce an early or late situation. Work quickly and accurately to get back on time. The NFS will have to know their

NLT time cold and should address this in their briefs. NFSs should be able to recognize just how late they are and ask for a rolex to a later entry time or start immediately with geometry and a faster airspeed on level off. NFSs should keep in mind that a rolex is a last option and completely at the discretion of the instructor. It may benefit you on this and other routes to have a backup entry time. NFSs should make sure to brief their back-up times. Using another callsign to reserve a route maybe a smart option for an actual flight, but be certain to choose a callsign that has no potential to be used by another aircraft, such as ROKT 551 or 611 if you are ROKT 511. Depending on your H/L routing, you may choose to go to VUZ, making a roughly 135° turn toward the entry point. If so, give careful consideration to proper leading of the turn, the turn radius, and how this will affect your timing. For fuel planning purposes, plan to land at KNPA.

STRIKE RADAR SIMULATOR

This event serves to segue between short/shared events, like RNs and LLs, and full-flight events in which the student has ownership of the mission from chock to chock. Strike flights are a step-up in complexity in both planning and execution. SRS is intended to assist you in making that transition.

In this event you will practice high-level timing to the entry point. Radar use in the low altitude environment (1500' AGL) is introduced. Use the first scenario from the STS as your high level timing game plan. For this scenario, you will base your timing plan on a simulated 0800 T/O time. Work high-level timing to the entry point, start elapsed time at Pt. A, and navigate on the VR-1032 using radar and visual cues as applicable. You will descend to 500' AGL and utilize visual checkpoints on the visual legs. Visual legs will be simulated by utilizing proper descriptive comm. The MC will respond appropriately if the described visual checkpoints are within sight with time hacks and distance estimates. Once the turn point or target environment is positively identified, you may turn the jet to maneuver over the turn point. It is important to think about how being off heading will affect you on the outbound leg. Exiting the route, plan to land at Meridian Key Field (KMEI).

Scenario: **KNPA – JAN300029 (VR1032) JAN300029 – KMEI**

COMPOSITES

Overview

This syllabus includes three Composite Synthetic Trainers (CSTs) and five Composite (COMP) flights. These simulator events and flights are the culmination of all skills the NFS has learned in the Strike Syllabus. The main objectives are advanced crew coordination, multi-sensor management, complex navigation (i.e. navigation off the black line), and navigation through mountainous terrain. Timing is now based on a real world Zulu time.

Simulator events will introduce medium and low altitude terrain interpretation using an air to ground radar, advanced radar navigation techniques, and techniques for using descriptive comm to direct the pilot in a tactical environment while maximizing the use of a route corridor. Due to the limitations of the 2B49 partial task trainer, the intent of CSTs is NOT to simulate all facets of a composite flight; rather, these events will be heavily focused on radar techniques that the NFS will use to compliment their visual scan on composite flights.

COMP-1 will be flown initially at 1500' AGL until the crew is comfortable. It is the MC's prerogative to approve a descent to 500' AGL for the remainder of the route. COMP-5X is a FRAG-X on an unfamiliar route. It will be planned on the day of the event with no instructor assistance. All aspects of the mission from planning to debrief are the responsibility of the NFS.

Planning

All charts are required to have all the information you have been required to include on them up to this point. Chart making and how to format a chart now moves to more of a process that you are comfortable with. You have more liberties on how to do your charts and what information to have on them. You are still required to have all safety of flight information and all information needed to navigate around a route on the charts. <u>You are not required to have a chart check for COMPs but it is still highly encouraged.</u> Below are some key additions or changes to chart preparation from COMP Ground School.

- You choose your own turnpoints
- Do not have turnpoints within 1.5 NM of the route corridor
- Try to have a 4-5 minute IP-TGT leg and preferably not a big turn at the IP
- Pick visually and radar significant turnpoints, MAKE THEM EASY TO FIND
- Have planned geometry cuts on the chart with headings, distance, times (including time saved or lost with the cut)
- Make sure to compute an ESA for each leg as always *(adding 2,000' for mountainous)*
- Note the highest terrain on each leg in mountainous routes
- Have a block at each turnpoint to have your real world time written in during preflight planning

Strip charts are constructed using the same methods as for previous events, and requirements are cumulative. See the Chart Checklist included in this supplement. ONC charts with the route and diverts (with full divert information) are required for all routes. Students must note the identifier, bearing and distance of the nearest divert on the strip chart itself EX: CHA/050/35nm. This will help with orientation in unfamiliar geography. The strip chart required size stays the same as put forth in Strike Seminar. *NOTE:* Check your work prior to printing to conserve toner, paper and especially YOUR TIME.

Overall NET/NLT will include time saved or lost utilizing planned cuts on the LL portion of the route. A useful technique is to note a NET/NLT at the entry point as well.
   NET: Take into account flying the low level black line in a single-down speed correction to the IP (TGT leg flown at 300KGS in COMPS).
   NLT: Take into account geometry cuts and a single up speed correction on low level.
      Consider fuel limitations/options:
      Fuel flow for 300 KIAS at 500' MSL: 3000 pph
      Fuel flow for 330 KIAS at 500' MSL: ~3300 pph

CST-1, CST-2

For CST-1, IR-083 and IR-723 charts and planning must be complete, including charts stripped and target radar predictions finished. Be sure to include visual checkpoints along with radar correlation points for each leg.

> **CST-1:**   KNPA → IR-083 → KAVL

> **CST-2:**   KAVL → IR-723 → KAVL

CST-3

In CST-3, students will have the experience of executing a mission for which someone else did the majority of the planning. This is a common real-world situation during combat operations. Having a planning team separate from the scheduled aircrew allows for crew rotation and rest prior to the mission.

Most of the planning materials for CST-3, including the strip chart and overview chart, will presented to you that day as part of a scenario. However, during your preparation time prior to the brief, you are required to complete the following:

- T/O, NET, NLT times
- High Level Timing plan with ZULU times
- Winded jet card
- Briefing Board
- Correlation points/visual checkpoints
- Fuel planning
- Possible geometric cuts on low level portion
- All FLIP/Pubs applicable to mission
- NOTAMS, weather, BASH (use nearby routes for BASH)

Students can expect to receive their planning materials 90 minutes prior to brief time. Plan ahead. Put up the shell of a board the night before. Develop a gameplan for creating your mission products.

COMP-1,2,3,4

For COMP-1, all of the COMP charts and planning materials must be complete, including the weather back-ups. In COMPs, flexing is common, either for weather or to challenge the student's flexibility. Be prepared.

COMP-5X

By COMP-5X brief time, students must have all of the info from CST-3 complete as well as a DD-175. A radar prediction is not required. All charts and materials will be turned in to the instructor following the event. If the flight cannot be completed during the scheduled day, then all materials, including the charts, will be collected by the MC and held until the following day, when a decision on how to complete the event is made. Under no circumstances are students to take home materials from a Comp-5X event, or discuss the event with other students. You will be given 3+00 for planning.

Pre-Brief Preparation

You are responsible for scheduling the route, as with Strikes. Remember, the route must be scheduled two hours prior to entry. In COMPS it is even more paramount for the students to deconflict with other VT-86 aircraft on the route. It is possible to enter the route during different 10-minute windows but have the same target time! It is also recommended to schedule a back up route in case weather prevents flying the primary plan.

Brief

Brief the Mission Timing plan as in Strikes, but include time gain/lost on the low-level portion of the route. As you go through the strip chart portion of the brief, talk in depth about radar and visual checkpoints. What are the get-well points? Brief contingencies and options. For example: If you do not enter the route on time, how will you get back on timeline? What impact will speed corrections have on fuel? What are the checkpoints for the pre-planned cuts? Consider the route as a whole: where are the big cuts, and when are you out of cuts? Brief also from a sensor management perspective. . Which legs on the route point to radar use, and which are better navigated visually? How can radar and visual cues be used together?

This is your chance to be creative. Think of a scenario for your mission and target. Brief a best weapon for the target and why. Consider what other players may be part of your mission.

Note: A radar prediction is required for each target. Brief your prediction.

Flight Execution Notes

You will strive to arrive at your MTR entry point on time by using the enroute procedures from Strikes. However, the target time is the control time. It is acceptable to shift between scheduled entry times on the MTR; this is not a rolex.

You are responsible for all Turnpoint Procedures but are only required to verbalize Updated ETA and Fuel Analysis on each leg. Many students elect to verbalize all TPPs and that is acceptable. Consider what TPP facilitate crew coordination as well, such as Two Minute Prior calls and turnpoint descriptions.

Dead Reckoning is still the primary means of navigation. The challenge will be to Dead Reckon as comfortably off the black line as on it. Make the TPPs work for you to this end. All of the basic principles of navigation learned prior to COMPs still apply.

COMP 2-5X are flown at 500 ft AGL. COMP-1 will begin at 1500' AGL, and then progress to 500' AGL at the MC's discretion. You may use any radar modes such as Freeze and Narrow Scan. Manage the radar to maximize situational awareness and complement visual information.

There are some differences in crew coordination and options to move the jet. "Easy", "standard" and "hard" turns are acceptable at any time. Call "wings level" and check the heading. Students may use "fly to" commands with proper coordination. BDHI's and standard timed course corrections still work and are acceptable. During the admin portions of the flight, students may use the term, "fly a course of" in order to direct the pilot to fly a particular course. For example, "two minutes prior to Semmes, fly a course of 257 outbound to Picayune."

Speed corrections are at the instructor's discretion, as geometry cuts are preferred if late to save both time and gas. Speed corrections need not be in 30 knot increments, but remember that updated ETAs should reflect your actual groundspeed. Keep in mind that TAS increases about 5kts/1000ft MSL – in terrain you will be changing MSL altitudes often. The minimum airspeed on the MTR will be 250 KIAS (for safety reasons), although you must be 300G or faster on the target leg for tactical reasons.

You must cross the target with 15 degrees of your preflight heading. The best advice is to get to your IP on time or a little late.

Summary

Composites are both enjoyable and demanding. They are your first Fleet-like Mission Commander Flights. Be aggressive and make decisions. Focus on building advanced crew coordination skills and leadership in the cockpit. Use turnpoint procedures in a more complex environment. Work to build situational awareness and comfort off the black line through Dead Reckoning with both visual and radar updates.

You will learn how to manage multiple sources of information, namely radar and visual cues. Focus on prioritizing each at appropriate times to build your SA. These skills of sensor management and prioritization will translate to whatever weapons systems you'll control in your operational aircraft.

Be prepared. Complete chart construction and preflight planning early.
Hit your target on time and have fun doing it! Good luck.

JMPS PLANNING STEP BY STEP

1. Open Joint Mission Planning System (JMPS)

Setting Up Permissions

Note: These items should already be set in the Master Permissions so you shouldn't need to change anything.

2. Select Graphical View (on the left side), select Options, Preferences and verify the following:
   a. Chart Tool
      i. Single Page
         1. Category - CADRG
         2. Scale - ONC 1:1M
         3. Non - Polar Projection – Equal arc
         4. Scale factor - 100%
         5. Labeling Options
            a. Deselect all checkmarks
            b. Delete Annotation Text
      ii. Strip Chart
         1. Category - CADRG
         2. Scale - TPC 1:500K
         3. Orientation - Follow Route
         4. Non-Polar Projection – Equal arc
         5. Scale factor - 100%
         6. Page Overlap – 1.94in
         7. Virtual Page Setup: Rows-1, Columns-2, Horizontal and Vertical Spacing - 0.25, Landscape
         8. Labeling Options
            a. Deselect all checkmarks
            b. Delete Annotation Text
   b. DAFIF
      i. Airports
         1. Min. Use Runway-5000
         2. Civ, Mil, Joint Use - ON
         3. Hide airports above-1:1M
         4. Hide airport labels above-1:250K
      ii. Airspace Boundaries
         1. Airspace Type – NONE
         2. Airspace Class – B, C, D
         3. Polygon Type-Edged, Background-ON
         4. Enable Tooltip - ON
         5. Hide Airspace Boundaries above-1:2M
         6. Hide Airspace Boundaries Labels above-1:250K
      iii. Military Training Routes
         1. Deselect All Route Options
         2. Hide routes above - 1:500K
         3. Hide labels above - 1:250K
         4. Display Route Options – Display Route Corridor-ON
         5. Line Color – Yellow
         6. Display Route Points - OFF
         7. VR & IR Routes - ON
         8. Display route points – OFF
         9. Remove all Routes Displayed
      iv. Navaids
         1. VOR & TACAN-ON
         2. Hide Nav above-1:2M
         3. Hide labels above-1:2M

  v. SUAS Boundaries
    1. SUAS Filter – Select Prohibited, Restricted, Warning, MOA, Temp
    2. Polygon Type - Edged, Background
    3. Display Threshold – Hide SUAS Boundary above 1:2M, Hide SUAS Boundary Labels above 1:250K

c. Electronic Chum
  i. Blue based icons and power lines
  ii. Line Width – Thin
  iii. Use height-specific icons – ON
  iv. Use Yellow Icons to Show Out of Synch Items - OFF
  v. Highlight New ECHUM - 2 Months
  vi. Hide CHUM labels above - 1:500K

d. Forms
  i. Form
    1. Calc Point Display
      a. Clear all

e. Manual Chum
  i. Blue based icons and power lines
  ii. Line Width – Thin
  iii. Hide Manual Chum above – 1:500K
  iv. Hide chum labels above – 1:500K

f. Routes
  i. Arrival Gate Preferences
    1. Change Gate ID to KNPA
  ii. Calculate Point Displays
    1. Forms – Clear All
    2. Graphical Editor – Clear All
    3. Tabular Editor – Clear All
  iii. Default Vehicle
    1. Change to Generic 01 Aircraft
  iv. Departure Point
    1. Change Point ID to KNPA
  v. Graphical Editor
    1. Corridor – Deselect On
    2. Doghouses
      a. Hide Doghouses Above - 1:500K
      b. Doghouse, Dividing Line, Bind to leg - ON
      c. Side of Route - Right
      d. Initial Distance Up Route Leg – ½
      e. Color - White
      f. Shading – 69.9%
      g. Font - Arial, Regular, 20, Outline, Background White, Foreground Black
    3. General
      a. Deselect all under Route Point Labels
      b. Line Thickness - 3
      c. Leg Style - Solid
      d. Symbol Size - 40
      e. Route Color - Black
      f. Deselect Hide Route Legs and Points
    4. Route Rehearsal – OFF

5. Tick Marks
   a. Display Threshold-1:500K
   b. Tick Mark Length - Full Right
      i. Distance Marks Tab
         1. Distance Marks - ON
         2. Major Tick Spacing - 5 NM
         3. Minor Tick Spacing – None
         4. Units - NM
         5. Side of Route - Left
         6. Font - 22, Outline, Background White, Foreground Black
         7. Minor Tick Marks Ever 1 NM - OFF
      ii. Time Marks Tab
         1. Time Tick Marks - ON
         2. Major Tick Spacing - 3 min (type in)
         3. Minor Tick Spacing - 1 min
         4. Side of Route - Right
         5. Font - Arial, Regular, 22, Outline, Background White, Foreground Black
         6. Type - Clock Time
6. Time Hacks
   a. Display Threshold - 1:500K
   b. Time Hacks - ON
   c. Font - 72, Outline, Background White, Foreground Black
   d. Type - Clock Time
   e. Show ETA at End of Route Leg - OFF
   f. Lock Time Hack Labels – OFF
g. Vehicle Preferences
   i. Generic 01 Aircraft
      1. Configuration Preferences
         a. Min Fuel – 1100
         b. Recovery Fuel – 1100
         c. Bingo – 1100
         d. Climb/Descent Alt. Difference - 50,000
      2. Standard Aircraft Preferences
         a. Minimum MSL – 0
         b. Max MSL – 28000
         c. Bank Angle – 30
         d. Airspeed – 300G
      3. STTO Preferences
         a. Fuel – 400
h. Scale Bar
   i. Display Scales – BOTH
   ii. Font Size – Large
   iii. Units – Nautical Miles/Yards
   iv. Foreground – Black
   v. Background - White
i. Session Preferences
   i. Coordinate Options
      1. Coordinate Format
         a. Primary – Lat/Long H DD MM .M
   ii. General
      1. Deselect Save Session Layout Automatically on Exit
j. View Preferences
   i. Map Background
      1. Center – N 30 20.00 / W 087 18.00

Building a Chart in JMPS

3. Open a New Route and go to Tabular View
    a. Enter Your Route Points
    b. Verify airspeed, bank angle, and altitude
        i. Airspeed (G for ground, T for true)
        ii. Bank Angle is 30, unless it is the first point on a LL route or out of the target on a LL route, then it is 0. Bank angle for Comps is 45.
    c. Change Point Types for TPs, IP, and TGT

4. Switch back to Graphical View
    a. Zoom in as appropriate and adjust your route points
        i. Select the Route Editor
        ii. Just click a Turn Point and drag it
        iii. To Delete a Pt just click it and hit delete
        iv. To Add a Pt just click were you want to put it
    b. Save your .rte file
        i. File - Save As - Select your thumb drive – Save the route as "Last Name IR/VR-XXX"

5. Re-label Points and Calculate
    a. Switch back to Tabular View
    b. In the Fix/Point Box, label your Points
        i. You must put a "." in front of your TP label (.A .B .C etc.)
        ii. Do this for each TP. This will be the Pt ID from the AP1B or Strike Segment Planning Guide
    c. In the Desc box, enter the Radial DME from the Strike Segment Planning guide or the appropriate TACAN cut for Comp Charts (ex. SJI 099002)
        i. To figure out what the TACAN cut is, put an "@" in the Fix/Point box
        ii. Enter that data in the Desc box to have it display in your Doghouse
    d. Enter Time Hacks as appropriate
    e. Calculate your route and fix any errors
        i. Do not continue if your route does not calculate properly!
    f. Save your .rte file

6. Build and Print an Overview Chart
    a. Switch back to Graphical View
    b. Turn ON Applicable Overlays
        i. Airports, Airspace Boundaries, NAVAIDs, and SUAS Boundaries
    c. Change route line thickness
        1. Overlay – Overlay Options – Select your .rte file
        2. Change Line Thickness to 6
        3. Change Symbol Size to 20
    d. Turn ON the Scale Bar
        1. Overlay – Scale Bar
    e. Brighten Map
        i. Click the Sun 2 times
    f. Open the Divert Drawing file
        1. File – Open – Drawing – OK – Desktop – Change File Type to ".drw" – Select Overview1.drw
    g. Set up Overlay Layers
        1. Overlay – Overlay Manager – Move the Drawing file above everything except the Scale Bar
    h. Print an Overview
        i. Select Chart Tool
        ii. Select Single Page
        iii. Click in the middle of your route
        iv. Adjust the size and layout as appropriate
        v. Select Chart Tool Generation Preferences (Right Side)

1. Select Labeling Options
   a. Uncheck everything
   b. Select Security Administration Options
      i. Delete everything
      ii. Uncheck Banner Print Override
   c. Under Annotation Text, "Last Name IR/VR-XXX"
vi. Select Print Preview and check your work before you print
vii. Select Print
   1. Select Downgrade
      Check Suppress Classification on Printouts
   2. Print your overview

7. Undo Things Specific to Overview Charts
   a. Remove the Chart Tool from Open Planning Data (Left Side)
      i. Right Click - Close
   b. Turn OFF Applicable Overlays
      i. Airports and NAVAIDs
   c. Change route line thickness
      1. Overlay – Overlay Options – Select your .rte file
      2. Change Line Thickness to 3
      3. Change Symbol Size to 40
   d. Turn OFF the Scale Bar
      1. Overlay – Scale Bar
   e. Close the Divert Drawing file
      1. File – Close – overview1.drw – OK
      2. **Do Not Save!!!!!!**
   f. Dim Map 2 clicks

8. Turn ON and set up Applicable Overlays
   a. Airspace, **Electronic Chum (VR Routes Only! Turning ECUM on early will slow your computer down so wait to turn it on just prior to printing),** MTRs, SUAS Boundaries
   b. Set MTRs to show your Route Corridor
      i. Overlay – Overlay Options – MTRs
         1. Type your route name under "Available Routes" and click OK
         2. **For Strike and COMP charts ONLY!**
            a. **Select Display Route Points**

9. Set up your Doghouses
   a. Overlay – Overlay Options – Select your .rte file – Doghouses – Template Select – Choose the Applicable Doghouse Template
   b. Zoom into TPC Scale and adjust the location of your Doghouses
      i. Select the Route Editor
      ii. Move your Doghouse
   c. **Save your .rte file!**

10. Build Text Boxes for Turnpoint Labels and Times
    a. Select the Drawing Editor, Select the Text Tool and Draw a Text Box
    b. Right click on the Text Box and select Edit Properties for Drawing Text
    c. Type the required text (Use Ctrl+Enter to move to the next line)
       i. For Pt Labels and Times:
          A   B
          00:00:00   00:04:55
       ii. Get the times from your Doghouses
           Make sure you enter the correct time!
           If you change your route at all, these times will be wrong!
    d. Color Black, Background Color White
    e. Background: Outline
    f. Font: 48
    g. Angle: Leg Heading

        h.   Scale to Map, Rotate With Map
        i.   Position the Text Box outside your route corridor
        j.   Copy and paste as required for each leg
        k.   Save your .drx file
                i.   File - Save As - Select your thumb drive – Save the drawing file as "Last Name IR/VR-XXX"

11. Build Informational Text Boxes
    a.   Used for MOA calls, Altitude Changes, FSS calls, and other applicable AP1B/Strike Segment Planning Guide information
    b.   Select the Drawing Editor, Select the Text Tool and Draw a Text Box
    c.   Right click on the Text Box and select Edit Properties for Drawing Text
    d.   Type the required text (Use Ctrl+Enter to move to the next line)
    e.   Color Black, Background Yellow
    f.   Background: Highlighter
    g.   Font: 28
    h.   Angle: Leg Heading
    i.   Scale to Map, Rotate With Map
    j.   Position the Text Box outside your route corridor
    k.   Copy and paste as required
    l.   Save All!

12. Build Ellipses
    a.   Used for NSAs, Airfields, No Fly Areas and other applicable AP1B/Strike Segment Planning Guide information
    b.   Select the Drawing Editor, Select the Ellipses Tool and Draw an Ellipse
    c.   Right Click and Edit Properties for Drawing Ellipse
        i.   Click Circle
        ii.   Adjust size in NM
    d.   Select Location and adjust the Lat/Lon as required
        i.   You can cut and paste this from the PDF of the AP1B
    e.   Copy and paste as required
    f.   Save All!

13. Manual Chum
    a.   Used for adding towers from the Special Operating Procedures Cautions in the AP-1/B
    b.   Select GO TO (up top) and type in Lat/Long (remember to convert to decimal vice seconds) to center JMPS on the area of concern.
    c.   Turn on EChum and confirm whether a Manual Chum Update is required. If the tower in the Cautions section is already there, do not add a new one.
    d.   Select Manual Chum Editor, Add Manual Chum Point, Select Single Tall Unlit Tower (or Mult. if required) and drag and drop the tower onto Graphical Editor in TPC Scale.
    e.   Right Click and Edit Manual Chum Info if the edit box did not automatically appear.
    f.   Add in AGL and MSL altitudes for tower.
    g.   Repeat as necessary.
    h.   Save All!

14. Crossing Routes for LLs
    a.   Used to draw in all crossing routes that conflict with your LL route in the AP-1/B.
    b.   Crossing routes will be found in the AP-1/B under Conflicts and Cautions.
    c.   Center the Graphical editor on the applicable leg.
    d.   Overlay – Overlay Options – Military Training Route (if not there, reselect MTRs under Overlays) – Displayed Route Options Select All – Route Centerline Blue – Route Corridor Yellow – Displayed Point Options Select All – Available Routes Ensure your LL route is on Routes Displayed and the crossing route from the Conflicts section of the AP-1/B.
    e.   Select Drawing Editor, Line Tool, Draw a line on the route center line of the conflicting route leading to your route corridor.

f. Right Click on the line and Edit Properties for Drawing Line. Color Bright Green, Style Single Arrow (reverse if pointing the wrong direction), Scale to Map. Embedded Text, Center, Font Arial, Regular, 44, Background Solid Rectangle, Background White, Foreground Bright Green, Type in Route Name VR-XXXX.

g. If your label disappears, it will print. If you want to see the label, make the arrow longer.

h. Copy and Paste as Required. To adjust the direction of the arrow after pasting, grab the tip or tail of the needle with the mouse and move it. Clicking on the center of the line will drop another point in the line.

i. After completing all required arrows for crossing routes, return to Overlay – Overlay Options – Military Training Route – Displayed Route Options Select Display Route Corridor Only –– Route Corridor Yellow– Displayed Point Options Deselect All – Routes Displayed – Ensure only your LL route is On.

j.   For Strike and COMP charts ONLY!
  i. Select Display Route Points

k. **Save All!**

15. Calculating geometry cuts, **for COMP charts ONLY!**

  a. Draw in your cut using an arrow via the Drawing Editor as you did for Crossing Routes. This time use a Red arrow, Embedded text Center, Font Arial Regular Size 40 Background None, Foreground Red. Label as "014M/21nm" (M for Magnetic, there is no degree symbol)

  b. Select Compute Distance and Bearing Tool from tool bar on top of graphical view.

  c. Right click on your start point and drag to your end point directly over your drawn arrow. This will give you a magnetic heading and distance in nm.

  d. The label will appear large on the screen, but will print out at an appropriate size.

16. Generate Strip Charts

  a. Zoom out to JNC

  b. Add a few legs so that there will be enough strip charts
    i. Select Route Editor
    ii. Select your last Target
    iii. Add a few legs

  c. Select Chart Tool
    i. Select Generate Strip Charts
    ii. Select Snap to Route Leg
    iii. Select Align to Route Leg

  d. Move your Strip Charts
    i. Start from the front of your route and place a Strip on each leg
    ii. Ensure you have a Strip for each leg

  e. Delete Extra Strip Charts if required
    i. Click on the extra Strip and hit delete

  f. Delete Extra Route Legs
    i. Select the Route Editor
    ii. Click on the extra TP and hit delete

  g. Set up Overlay Layers
    i. Overly – Overlay Manager
      1. Set Overlays in the following order
        .cht file
        .jrt file
        .drx file
        Electronic Chum
        MTRs
        Airspace Boundaries
        SUAS Boundaries

  h. Set up Labeling Options
    i. Select the Chart Tool
    ii. Select Chart Tool Generation Preferences (Right Side)
      1. Select Labeling Options
      2. Uncheck everything

3. Delete Annotation Text

The File Name of your .rte file will be printed on Strip Charts

4. Select Security Administration Options

Delete everything

Uncheck Banner Print Override

i. Brighten Map if you Dimed it after making your Overview

    i. Click the Sun 2 times

j. Print Preview your Strip Charts

    i. Select Chart Tool

    ii. Select Print Preview

        1. Look at each leg and verify you have a strip for each leg and that you are able to view your Route Point Labels, Route Times, Doghouses and text boxes.

            a. Double check each leg to make sure no information got cut off. Also check that each leg has some amount of chart displayed past the turnpoint in order to use it for radar navigation (i.e., correlation points 10-15 NM past your point)

            b. If a single leg won't fit on a page, sacrifice information from the last point and move forward. You shouldn't have to eliminate more than 5 NM of any leg.

        2. Double check to make sure you have the applicable items displayed on your chart:

<u>For RN Charts</u>
Yellow Route Corridor (All except NPA 12)
SUAS - ON
Airspace Boundaries - ON
Make Sure Echum is OFF!
Make Sure MTR Route Points are not displayed!

<u>For LL Charts</u>
Yellow Route Corridor
SUAS - ON
Airspace Boundaries - ON
Echum - ON
Make Sure MTR Route Points are not displayed!

<u>For Strike and Comp Charts</u>
Yellow Route Corridor
SUAS - ON
Airspace Boundaries - ON
Echum - ON
MTR Route Points – ON

k. Print Your Strip Charts

    i. After everything is checked and you are ready to print, we recommend you find a JMPS instructor or your PA and have them check it before you print.

    ii. Select Print from the Print Preview Screen

        1. Select Downgrade

        2. Check Suppress Classification on Printouts

l. Save your .cht file

    i. File - Save As - Select your thumb drive – Save the drawing file as "Last Name IR/VR-XXX"

m. **Save All!**

17. Opening your saved data
    a. Once re-opening JMPS it will default to the Master Permissions and open a new .rte file
    b. You will need to close this file before you open your saved data
        i. Click File – Close - .rte – Close
    c. Now you can open your Saved .rte, .drx, .cht files
        i. File – Open – Route – Select your .rte file from your thumb drive
        ii. File – Open – Draw – Select your .drx file from your thumb drive
        iii. File – Open – Chart – Select your .cht file from your thumb drive
    d. Do not have multiple of the same type of files open at the same time. JMPS will crash

Stripping Charts

- Folder size will be 8.5" X 7.25-8"
- Best adhesive to use is spray (i.e.3M Type 77). Rubber cement and other "wet" glues will cause the colors to bleed and render your chart unusable. Stick glue may also work.
- Build a pocket in the last page of the chart to hold your overview chart.
- Paste the strip chart page on the left of the folder. On the right side, you should include:
    ➢ Wind T's or bullseye marked to the nearest 10 degrees of heading
    ➢ Checkpoint/Correlation point distances
    ➢ Real world times (for CST/COMP flights)
- Annotate on cover of strip chart
    ➢ Name/Class Number/Route Name
    ➢ eChum & AP/1B Expiration Dates (echum not req on IR Routes)
    ➢ Copy of Strike Planning Guide Route Description
    ➢ Copy of AP-1B (except for NPA-14)

AS A FINAL REMINDER, STUDENTS ARE REQUIRED TO HAVE A CHART CHECK PRIOR TO RST-1 and LL-1.

VT-86 CHART CHECKLIST

RST-1

- ❑ NPA-14, IR-037, IR-040
- ❑ OVERLAYS
    - ○ AIRSPACE BOUNDARIES
    - ○ MILITARY TRAINING ROUTES (MTRs)
    - ○ SUAS
- ❑ VT-86 DOGHOUSES/MINI-DOGHOUSES FILLED IN WITH CORRECT INFO*
- ❑ WIND T'S EVERY LEG TO NEAREST 10 DEGREES
- ❑ TURN RADIUS OUT OF ALL POINTS, INCLUDING TARGETS
- ❑ AT LEAST ONE OR TWO CORRELATION POINTS PER LEG
    - ○ DISTANCE TO NEXT TURNPOINT AND DISTANCE LEFT OR RIGHT ANNOTATED
- ❑ RADAR PREDICTION FOR EACH TARGET
- ❑ OVERVIEW CHART WITH MINIMUM TWO MILITARY AND TWO CIVILIAN DIVERTS W/GOVT CONTRACT FUEL
- ❑ CORRECT CLOCK TIME & ELAPSED TIMING ALONG ALL LEGS
- ❑ OVERVIEW CHART

LL-1

- ❑ VR-1024, VR-1021
- ❑ OVERLAYS
    - ○ AIRPORTS
    - ○ AIRSPACE BOUNDARIES
    - ○ ELECTRONIC CHUM (eCHUM)
    - ○ MILITARY TRAINING ROUTES (MTRs)
    - ○ SUAS
- ❑ OFFICIAL VT-86 DOGHOUSES FILLED IN WITH CORRECT INFO
- ❑ MANUAL CHUM (From AP/1B)
- ❑ WIND T'S EVERY LEG TO NEAREST 10 DEGREES
- ❑ NO TURN RADIUS OUT OF TARGETS
- ❑ CHECKPOINTS--NO SET NUMBER (NOTE: THAT DOES NOT MEAN NONE) BUT MUST BE PREPARED TO DEFEND CHOICES WITH TIME AND DISTANCE ANNOTATED
- ❑ HAZARDS ANNOTATED
    - ○ All towers within 5nm of course whose altitude is 400 FT AGL or greater
    - ○ Hard/soft surface airports within 5nm of course. Should be avoided by 3nm or 1500' AGL
    - ○ Crossing routes (direction and name of route)
    - ○ NSAs
- ❑ OVERVIEW CHART WITH MINIMUM TWO MILITARY AND TWO CIVILIAN DIVERTS W/GOVT CONTRACT FUEL

STS

- ❑ TIMING PLAN FOR THREE SCENARIOS
    - ○ DD-175 FOR EACH
    - ○ STICK DIAGRAM OF ROUTE WITH TIME GATES AT EACH POINT
    - ○ WALK, T/O AND NET/NLT TIMES

SRS

- ❑ TIMING PLAN FOR VR-1032
  - ○ STICK DIAGRAM OF ROUTE WITH TIME GATES AT EACH POINT
  - ○ STEP, T/O AND NET/NLT TIMES
- ❑ OFFICIAL VT-86 DOGHOUSES FILLED IN WITH CORRECT INFO
- ❑ WIND T'S EVERY LEG TO NEAREST 10 DEGREES
- ❑ AT LEAST ONE OR TWO CORRELATION POINTS PER LEG
  - ○ DISTANCE TO NEXT TURNPOINT AND DISTANCE LEFT OR RIGHT ANNOTATED
- ❑ RADAR PREDICTION FOR EACH TARGET
- ❑ OVERVIEW CHART WITH MINIMUM TWO MILITARY AND TWO CIVILIAN DIVERTS W/GOVT CONTRACT FUEL
- ❑ CHECKPOINTS: NO SET NUMBER *(NOTE: THAT DOES NOT MEAN NONE)*
  - ○ TIME AND DISTANCE ANNOTATED
- ❑ HAZARDS ANNOTATED
  - ○ All towers within 5nm of course whose altitude is 400 FT AGL or greater
  - ○ Hard/soft surface airports within 5nm of course. These should be avoided by 3nm or 1500 FT AGL
  - ○ Crossing routes (direction and name of route)

STK-1

- ❑ VR 1032, VR 1059, VR 1024, VR-1031, VR-1050
  - ○ The routes are interchangeable and must all be complete and present for all Strike briefs
- ❑ ALL CHART INFORMATION UP TO THIS POINT REQUIRED
- ❑ OFFICIAL VT-86 DOGHOUSES FILLED IN WITH CORRECT INFO
- ❑ WIND T'S EVERY LEG TO NEAREST 10 DEGREES
- ❑ AT LEAST ONE OR TWO CORRELATION POINTS PER LEG
  - ○ DISTANCE TO NEXT TURNPOINT AND DISTANCE LEFT OR RIGHT ANNOTATED
- ❑ RADAR PREDICTION FOR EACH TARGET
- ❑ OVERVIEW CHART WITH MINIMUM TWO MILITARY AND TWO CIVILIAN DIVERTS W/GOVT CONTRACT FUEL
- ❑ CHECKPOINTS NO SET NUMBER *(NOTE: THAT DOES NOT MEAN NONE)*
  - ○ TIME AND DISTANCE ANNOTATED
- ❑ HAZARDS ANNOTATED
  - ○ All towers within 5nm of course whose altitude is 400 FT AGL or greater
  - ○ Hard/soft surface airports within 5nm of course. These shall be avoided by 3nm or 1500 FT AGL
  - ○ Crossing routes (direction and name of route)
  - ○ Highest terrain on each leg (mountainous routes)

CST-1

- ❑ IR-83, IR-723
  - ○ BOTH COMPLETE READY TO FLY
- ❑ **TRUE** HEADING DOGHOUSES
- ❑ ALL CHART INFORMATION UP TO THIS POINT REQUIRED
- ❑ RADAR PREDICTIONS FOR EACH TARGET
  - ○ IR-83   40nm prediction high altitude
  - ○ IR-723 20nm prediction low altitude
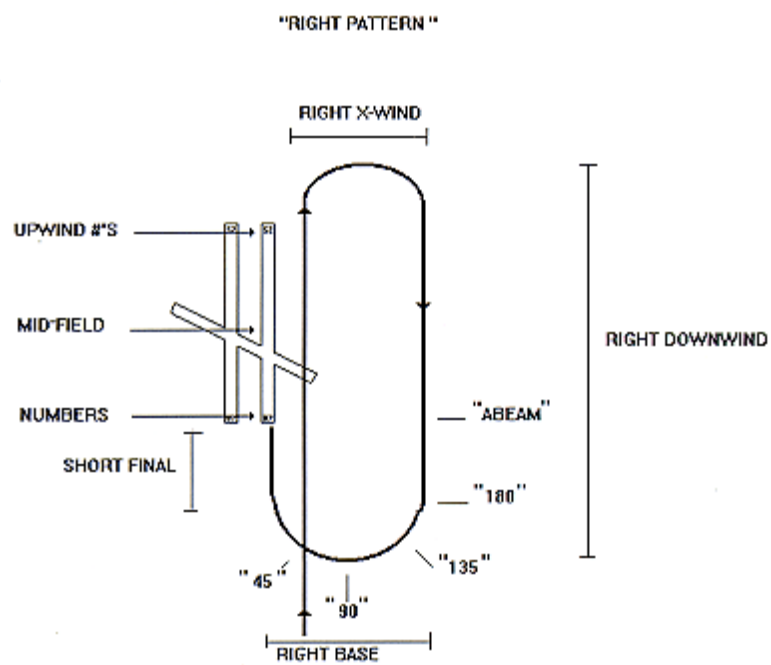- ❑ HAZARDS ANNOTATED (see above)

COMP-1

- ❑ VR-1056, VR-1055, VR-189, VR-1182, All STK and LL charts
- ❑ ALL CHART INFORMATION UP TO THIS POINT REQUIRED
- ❑ RADAR PREDICTION FOR EACH TARGET
- ❑ OTHER
  - o Do not have turnpoints within 1.5 NM of the route corridor
  - o Try to have 4-5 min IP-TGT leg
  - o Visually and radar significant turnpoints
  - o May have planned geometry cuts on the chart
  - o Block at each turnpoint for real world time
  - o ONC Chart for each route with divert information
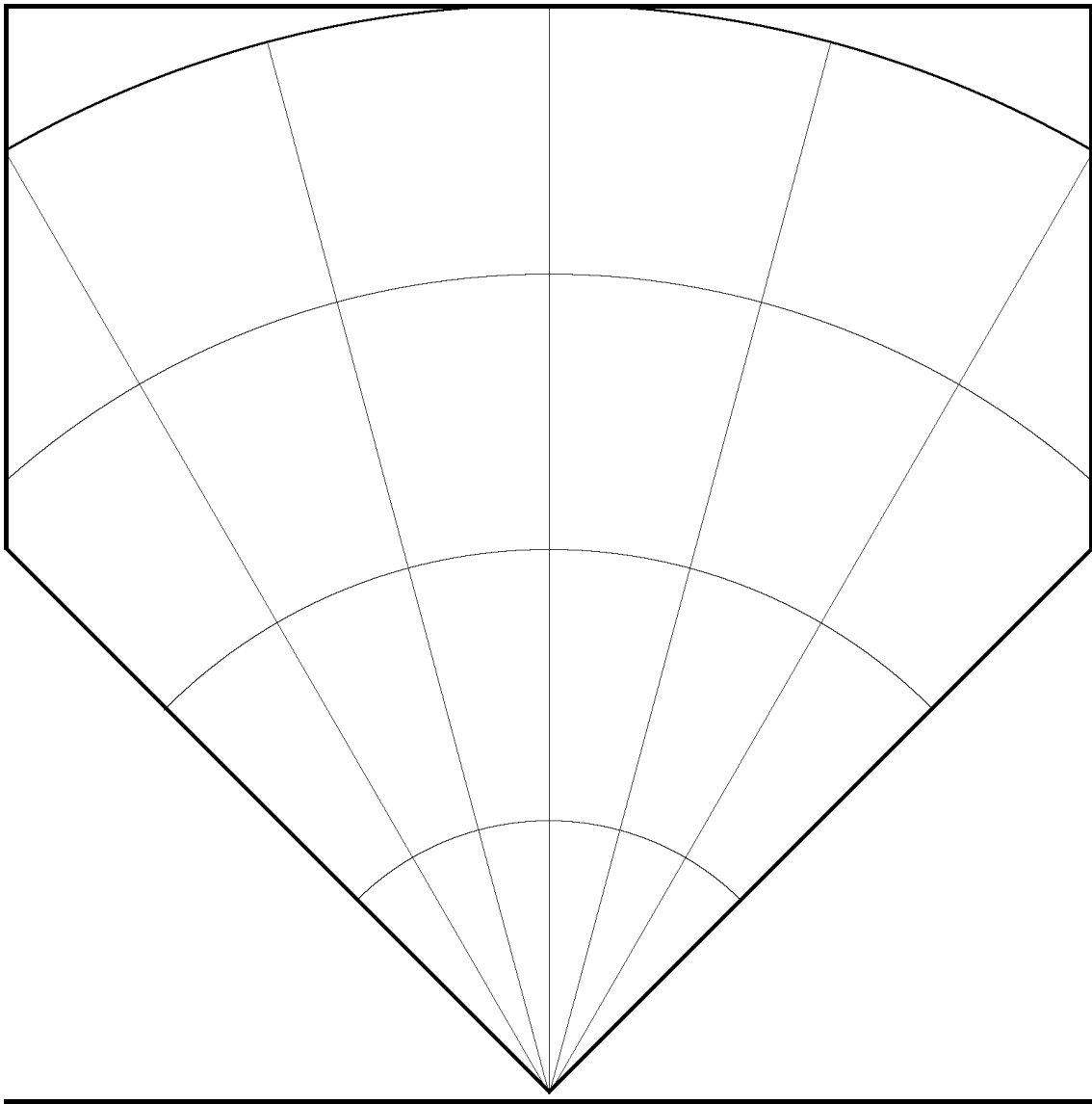- ❑ HAZARDS ANNOTATED (see above)

GENERAL REQUIREMENTS

- ❑ *DOGHOUSES FOR ALL VT-86 CHARTS CONTAIN
  - o MC (True for CSTs), DIST, ETE, ESA, MCF, BINGO, TP TACAN CUT
- ❑ For every point a Range/Bearing to the nearest suitable emergency divert field (5,000' runway) shall be listed in RED in the margin of your chart.
- ❑ Penned-in miniature doghouse for outbound leg on each leg containing the outbound course.
  - o Oriented on direction of outbound leg
- ❑ Bring all charts to every brief of each particular block. All charts for a particular block must be complete and ready for inspection during the first event (RST-1, LL-1, etc.). Have all jet cards as well, but only wind the AirNav portion you expect to fly. Not having all charts will result in automatic fail. Fly with all charts from that block & all previous (except RN's), to allow max flexibility.
- ❑ While most of the turn points we have given you in the Strike Segment Guide correspond to the AP/1B points, some do not. If a TP is within 6 NM of an AP/1B point, it will be assigned the same letter. If a TP falls outside the 6NM range, it will be given a number/letter designation depending on which AP/1B points it falls between. For example, if a TP falls between AP/1B points B and C, it will be named 1B.
- ❑ Basic strip chart size will be 8 ½ X 7¼"-8" when open &, folded in half, it should be 4¼ X 7 ¼"-8".
- ❑ All charts are required to have the following information:
  - o Signature with a black ballpoint on the outside corner of the chart.
  - o Name, Class #, NPA-XXX/VR/IR-XXXX with a black felt tip pen on the outside
  - o The date last CHUMMED annotated on the back
  - o The AP/1B date
  - o There shall be no red ink on the chart, even while flying
  - o A glued Xerox copy of the Strike Segment Guide route description
  - o A glued Xerox copy of the AP/1B as applicable
  - o The corresponding ONC with the strip chart
  - o Range and Bearing to the nearest suitable Divert in RED.
- ❑ Pop off frequencies will be on the chart prior to brief time.
- ❑ A personal advisor or other available Strike instructor chart check prior to RST-1 and LL-1 is required. Should be annotated in the junk jacket. Failure to get a chart check will result in a Ready Room fail. Chart checks are encouraged for Strike and Comp charts.
- ❑ Students shall turn in all charts to Strike Stan Officer upon successful completion of COMP-5X.
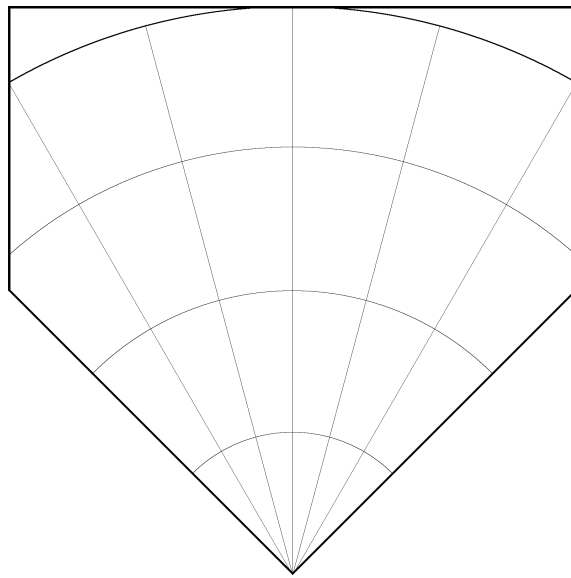
VFR PATTERN

"RIGHT PATTERN"

RIGHT X-WIND

UPWIND #'S

MID-FIELD

NUMBERS

SHORT FINAL

"ABEAM"

"180"

"135"

RIGHT DOWNWIND

"45"

"90"

RIGHT BASE

40 NM RADAR TEMPLATE

20 NM RADAR PREDICTION TEMPLATE

STRIKE BOARD BRIEF

Time Hack: *(From the Naval Observatory, NOT the clock on your microwave).*

C/S/Crew/Event: ***ROKT 5XX**, Pilot / Instructor / Student (Event) / Observers*

ORM: *Self-Assess / What are risks of mission? / How do we eliminate these risks? / How do we reduce the risks we cannot eliminate?*

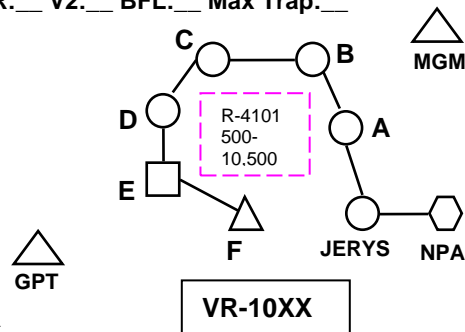**TIMES:** **Walk:__ T/O:__ NET:__ NLT:__ Entry:__ Target:__ Land:__** (For Entry, put the times you own)

TOLD: **Temp:__C T/O EPR:__ Climb EPR:__ V1:__ VR:__ V2:__ BFL:__ Max Trap:__**

RTE OVERVIEW: Hand-drawn Overview

Wx / NOTAMS / BASH / TFRs

COMM PLAN: **Pri:**1-2-3-4-5/6-As Assigned…
Aux: 18
V: L3
IFF: A/A–1200–4000–1200–A/A

FUEL: **MCF:__** (Fuel required at start up) **MCF Pt A:__**
PFOD:__

R-4101
500-
10.500

VR-10XX

ALTERNATE: Name, TACAN/VOR, Bearing/Range, Fuel Required to land at the alt with 1,100 lbs *(shall be in red)*

EMERGENCIES: **General, Ground, T/O, Enroute, System Failure, Recovery** *(shall be in red)*

QOD: **BOLDFACE** *(shall be in red)*
NATOPS
SOP
GK

SCENARIO: Student-developed scenario

LOADOUT: Simulated Weapons

THREATS: Simulated threats / NSAs *(shall be in red)*

OTHER PARTICIPATING UNITS: Real and/or Simulated

CONTINGENCIES: Discuss Aircraft / Man / Weather contingencies

STRIKE BRIEFING GUIDE

I. **BOARD BRIEF**

II. **MISSION OBJECTIVES & GOALS** (What are the Master Curriculum Guide Learning Objectives for Mission and your Personal Goals.)

III. **PREFLIGHT**

IV. **LAUNCH**
   A. Engine Start: (Hot, Hung, Wet Starts & Limits).
   B. Taxi: Safety/Lookout Doctrine/Comms/CK Lists/Abort Brief
   C. Departure Procedures
      1. SID or Radar Vectors: Course/Altitude Restrictions
      2. Non-Local Procedures/Civilian Field OPS
         a. Activate Flight Plan with FSS
         b. Unfamiliar Taxi
         c. Navigation/On Course Plan after T/O

V. **MISSION BRIEF & CONDUCT (Use Overview and Strip Chart)**
   A. **Flight Plan Routing To Entry**
      1. NET/NLT Timing Calculations and Fuel
         a. Time control methods that you are intending to utilize
         b. Planned groundspeed, altitude, routing
         c. Preflight winds
         d. NET/NLT & how these were derived/calculated
         e. Potential geometry cuts
         f. Possible throttle options
         g. MCF at entry
         h. Discuss contingencies: *Example:* If we take off 5 minutes late, what are the best options to get back on time? How late can we take-off and still make an on-time entry? What will be the impact on fuel?
   B. **Route Entry**
      1. Descent point/entry altitude
      2. IR/VR route entry procedures
      3. TACAN/Radar/Visual Gameplan for Entry
      4. Cancellation Point/Route Entry Checklists
      5. Desired Entry Time/Must Make +/- 4 minute Window of Scheduled Entry Time
      6. Contingencies (Alternate Entry Points & Times)
   C. **Route Brief**
      1. AP/1B Description (Altitudes, alternate entry/exit points)
      2. Entry Point/Turnpoints/Checkpoints/Correlation points/Target
         Route Legs Will be Briefed In Order As Follows:
         a) Heading
         b) Altitude (If Changes)
         c) Distance
         d) Time at Next Point
         e) Turnpoint Description and Strategy to Find It
         f) Checkpoints/Correlation Points and Hazards along leg/ Strategy to find & use check/correlation points:
               -Scan, Gain, Tilt, physical features, radial math
         g) False Turnpoints
         h) Geometry Cuts (Comps Only)
      3. Hazards to flight: Birds/Obstructions/Restrictions/Avoidance Areas
      4. Mandatory calls or reporting points

D. **Target**
    1. Target Description/Gameplan/Run-In Description/Imagery
    2. Radar Prediction
    3. False targets in area
    4. Two minute prior from other student
    5. Student swap procedures

E. **Exiting Route Procedures**
    1. Heading-Altitude-Airspeed-Squawk-Navaids
    3. Communications-Off Route/Pop-Off Frequencies/Check-In Call
    4. VFR/IFR Procedures (Flight Following, Clearance).
    5. Flight Plan Routing to Destination.

VI. MISSION SPECIFIC PROCEDURES

A. **AIRNAVS**
    1. Enroute Delay for Practice Approach
        a. Initial call to clearance will normally only clear you to first delay point
        b. Must request next leg or route upon check-in
        c, Climbout Instructions
    2. Navaid Selection
    3. Weather Avoidance
        a. Winds at altitude/analysis/effects
    4. In-Flight Change to Flight Plan/Routing

B. **RADAR**
    1. DR is Primary Means of Navigation
        a. Clock/Chart/Scope
        b. Update Position
        c. Execute Accurate Cursor DR
        d. Always Update ETA
    2. Big Picture, look beyond turnpoint, may range up and down as necessary.
    3. Correlation Point Utilization
        a. Based On CURRENT Position
        b. Range vs. time, slant range vs. ground range
        c. Geographical relationship between turnpoints and checkpoints
        d. Angular math
        e. PROVE IT BEFORE YOU MOVE IT
            -- DR, Correlate, THEN refine with RSI
    4. Radar Scope Interpretation
        a. drainage patterns, false no-shows, terrain features vs. cultural returns, far-shore-brightening
        b. weather/weather avoidance
            -- general plan navigate around WX
            -- cursor use, timing, return to course plan
        c. banding
        d. use of drift/ground speed checks/ATA vs. Updated ETA
            -- wind analysis/course corrections
        e. gain/tilt
        f. losing turnpoint in close
        g. altitude hole
        h. marking on different types of TPs—towns in terrain, cities, bridges, lakes
        i. place cursor on leading edge center of TP (beam width vs pulse length error)
        j. adjustment of cursor intensity

C. LOW LEVEL
1. DR is Primary Means of Navigation
   a. Clock, Chart, Ground
   b. Update Position
   c. Determine Time To Check Point
   d. Update ETA
2. Check Points
   a. Based on CURRENT position, determine: **When/What/Where**
      "*One Minute/Firetower/one mile right of course*"
3. Wind Consideration
   a. Forecast
   b. ATA vs. Updated ETA
   c. Smoke, wind patterns on water
4. Scan
   a. Eyes outside 90% of the time is the goal
   b. Time distance estimation at 600' AGL:
      Horizon   = 15nm = 3 minutes
      ½ horizon   = 5nm   = 1 minute
      Wingtip   = ½ nm
5. Big picture, funnel navigation
6. Clock positions: 11:00 = 30°L, 11:30 = 15°L, etc.

D. TURNPOINT PROCEDURES

E. COURSE CORRECTIONS
1. BDHI'S & Standard

F. SPEED CORRECTIONS
1. Complex vs. Standard
2. Put in ON TOP

G. JUNGLE RULES
1. Speed Corrections
2. Course Corrections
3. Slant Range
4. No "wind consideration/analysis" required/Compensation is required
5. Simulated weapons delivery & procedures (Straight & Level)

H. COMP PROCEDURES DISCUSSION
1. Radar Procedures
2. TPPs
3. Terrain Integration
4. MC Responsibilities

VII. RECOVERY
   A. Route and Comm Plan to IAF/Airfield
   B. Approach Type requested and contingencies
   1. Weather, checklists, briefs
   2. Check-In with Approach
   3. Touch & Go, Tower Pattern, Missed Approach, Climbout Procedures
   C. Landing/Ground Procedures
   1. Lookout, Communications, Checklists
   2. Non-local procedures (field diagram, location and name of FBO)
   3. Post-flight walk-around

VIII. CREW COORDINATION TRAINING (CRM)
- A. Decision Making
- B. Assertiveness
- C. Mission Analysis
- D. Communication
- E. Leadership
- F. Adaptability/Flexibility
- G. Situational Awareness

IX. MISCELLANEOUS
- A. DD-175-1 Complete/Changes Made/Ensure Flight Plan Filed
- B. NATOPS System Discussion
- C. TTO/DOR
- D. ANY QUESTIONS?

STRIKE MISSION DEBRIEFING GUIDE

1. SAFETY-OF-FLIGHT, SOP/TRAINING RULE VIOLATIONS

2. BRIEF:
Briefing room organization
Briefing Board Errors
Points improperly briefed
Briefing Technique improvement
DD-175 Plan vs Execution (Deviation)
STK/COMP Timing Errors (If Applicable)
Fuels

3. ADMIN:
Enroute
  - BAR
  - Comms
  - Checklists
RTB
  - BAR
  - Comms
  - Checklists
  - Approach

4. TAC ADMIN:
Route Entry Procedures (If Applicable)
  - High/Low Level Entry Checks
  - Descent Control
Fuel checks
Alibis
Environmentals
  - Winds: High Level and Low Level
  - Ceilings
  - Sun Angle (if applicable)

5. MISSION CONDUCT:
Route Performance (If Applicable)
TPPs
Overall SA
Speed Corrections
Course Corrections
Descriptive Comms
Target Acquisition/Timing

6. TAKEAWAYS:
Mission/Training Objectives
Goods/Others
Recommendations for Improvement